UNITED STATES
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
MANAGEMENT DIVISION
STATE-FEDERAL RELATIONS BRANCH

FINAL REPORT

State:	Massachusetts
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Project Title:	Management Information Systems and Fisheries Statistics
Period Covered:	January 01, 2000 -- December 31, 2000

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INTRODUCTION

The Massachusetts Division of Marine Fisheries has collected fisheries statistics since the inception of the Agency. In 1966, the Division began to expand its fisheries statistics collection, analysis and dissemination with the assistance of various Federal Grants from the National Marine Fisheries Service, and it's predecessor the Bureau of Commercial Fisheries under The Commercial Fisheries Research Act, and later, The Interjurisdictional Fisheries Act. Since the 1980's the scope of the projects funded have expanded to include computer processing and Management Information Systems. This current project (3-IJ-163), calls for the continued collection of all the statistics previously collected, expansion of collection systems to include new species and fisheries, development of systems to effectively monitor IJ species now being managed by individual state quotas and the development of GIS (Geographic Information Systems) technology and applications that would allow spatial analysis of fisheries data.

JOB 1 -- ANNUAL REPORTS

Objectives: To obtain information on the employment, number, types and value of gear (including vessels), ports of landing, quantity and value of selected Massachusetts fisheries. Note: as annual reports are collected after the end of the calendar year and processed during the following year, this project period details collection efforts during 2000 for the 1999 calendar year. In some cases (gear information and fish trap fishery), 2000 information is collected and available during the project period.

1. Coastal and Offshore Lobster Fishery -- 1999

In accordance with the Massachusetts General Laws, Chapter 130, Section 33, all lobstermen operating in the Commonwealth's territorial waters or landing at Massachusetts ports are required to have a license issued by the Division of Marine Fisheries and to file an annual report on their lobster fishing activities. License renewals are not processed unless the annual report is submitted.

Statistics Project personnel log in and edit all data contained in the catch reports. For 1999, the commercial lobster catch for Massachusetts fishermen was reported to be 15,905,731 pounds. This was a 20% increase from 1998, when 13,236,091 pounds were landed. The overall value of the catch increased to a value of $59,487,433. The value of pots, scuba gear and vessels in the commercial fishery was established to be $82,933,850. The reported recreational harvest was 335,275 pounds. A graphic summary of selected trends in the lobster fishery is presented in Figures 1 through 4. For detailed statistics and reporting and compilation methods, the reader is referred to the publication entitled "1999 Massachusetts Lobster Fishery Statistics", which is appended to this report (Appendix A).

Edible crab landings were also collected from the 1999 lobster catch reports and totaled 3,012,794 pounds in 1999. Most of the landings were caught in offshore areas by offshore licensed lobstermen.

Figure 1. Total Lobster Harvest & Percent Change; 1993 - 1999

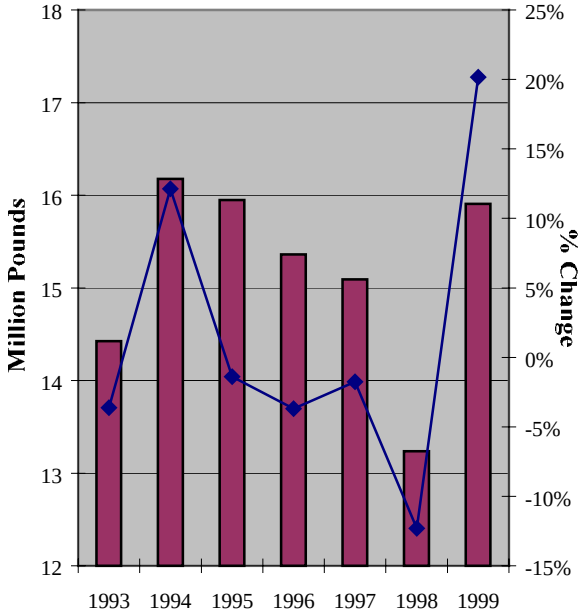


Figure 2. Total Commercial Value & Percent Change; 1993 - 1999

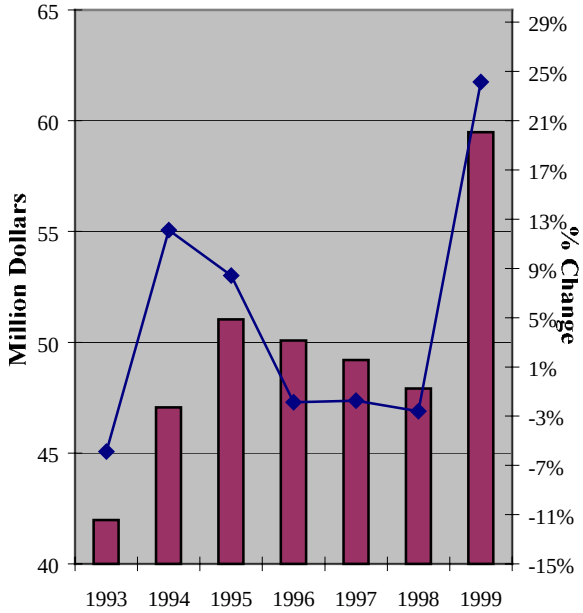


Figure 3. Total Traps Fished & Percent Change; 1993 - 1999

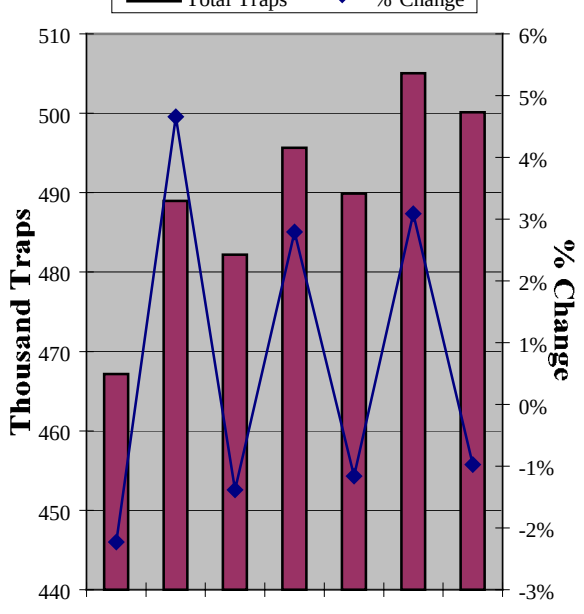
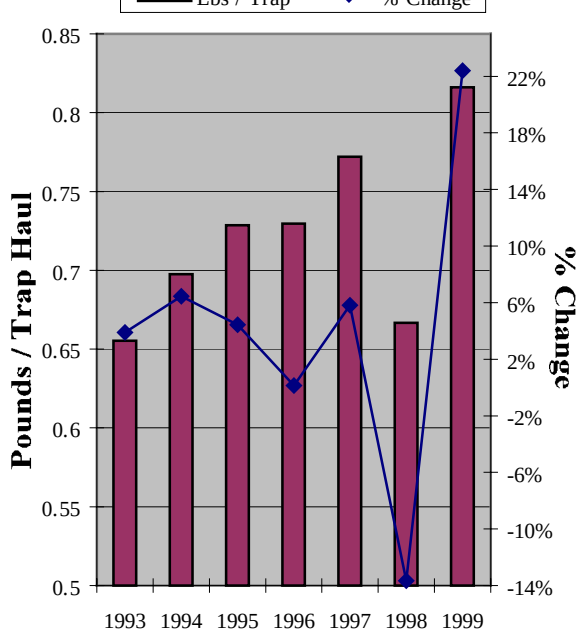


Figure 4. Ave Catch per Trap Haul & Percent Change; 1993 - 1999



Audit of Commercial Coastal Lobster Catch Reports

Since 1977, the Division has randomly selected a predetermined number (roughly 10% of the total licenses issued) of commercial coastal lobster catch reports for audit. It was anticipated that the audit program would provide a basis for determining the validity and accuracy of the data obtained from the individual catch reports.

In 2000, 166 catch reports were selected for audit of their 1999 harvest records. Of these, 118 were chosen randomly and 48 were selected because they had either failed the audit in previous years or were excused from that audit by the Director of the Division. Of the 48 lobsterman eligible for reaudit, 32 reported that they fished during 1999 and thus were all selected for the audit. The remaining 150 fishermen reported harvesting 2,129,319 pounds of lobster during 1999.

Four licensees relied on unofficial documentation such as personal logs or ledgers to substantiate their reported catch. These fishermen reported landing 61,744 pounds, while the audit of their records revealed a harvest of 61,344 pounds, a difference of 0.64 percent. One fisherman in this group documented their harvest exactly, and none of the fishermen had a discrepancy exceeding ten percent and were considered to have failed the audit.

One hundred and fourty of the auditees were able to provide official documentation (dealer transaction slips, tax records, etc.) to back up their catch reports. The fishermen in this group reported landing 2,024,520 pounds, while the audit showed that they landed 2,001,511 pounds, a difference of 1.13 percent. Seventeen lobstermen in this group were able to document their harvest exactly, while 18 had discrepancies exceeding ten percent of their total harvest. Most of these 18 will be reaudited in 2001. Six of the lobstermen chosen for audit were unable to provide any records to substantiate their reported catch. All of them had their audit officially postponed by the Director for cause.

2. Coastal Shellfishery -- 1999

Although the Interjurisdictional Fisheries Act of 1986 does not allow for reimbursement of work done on shellfish, the Division does still collect data on the Massachusetts shellfisheries. NMFS is not invoiced for staff time spent on this activity. In the spirit of cooperation, we have included data on the shellfisheries to ensure that those who have become dependent on the time series established by the publication of Project Progress and Final Reports do not lose this valuable data.

Under regulations promulgated by the Division, Shellfish Officers from each coastal city and town are required to submit annual reports of the shellfish harvest in their respective communities. In the past, this reporting requirement had to be satisfied before any of the $300,000 that the Division had available for direct assistance to local shellfish programs was dispensed. However, due to severe State budgetary problems since 1990, no money has been available for distribution to the cities and towns for their shellfish programs. Lacking the "carrot" of State-aid, catch reports were sent to the Shellfish Officers requesting their voluntary compliance. Report distribution and compliance follow-up was handled by the Division's Shellfish Technical Assistance Project.

Information requested from the shellfish officers included the types and numbers of shellfish licenses issued as well as the town's commercial and family (recreational) harvest by species. The 1999 reports submitted by the shellfish officers are summarized in Table 1. Five year trends in total landings of selected species are presented in Figure 5.

In addition to the data collected from the Shellfish Officer's reports, the Project collects data from individual fishermen. All commercial shellfishermen are required to have a permit issued by the Division and to file an annual report of their shellfishing activities. The catch report form is mailed to each commercial fisherman at the end of each calendar year along with their permit renewal form. A new permit is not issued unless the catch report form is submitted with the renewal application. During 1999, 2,937 commercial shellfishermen filed catch reports on their fishing activities. Of the individuals submitting reports, 1,466 said that they did not participate in the shellfishery during 1999. Detailed statistics for the 1,471 individuals who actively participated in the fishery, separated by county, are presented in Table 2.

Table 1. 1999 Massachusetts Shellfish Statistics Based on Reports from Local Shellfish Officers.*

Number of Permits Issued by Cities and Towns

Total Family (Recreational) Permits	23,589
Resident Family Permits	19,218
Non-resident Family Permits	4,371
Commercial Permits	3,529
Senior Citizen Permits	5,363
Total of All Permits	**32,481**

Shellfish Harvest (in pounds).

Species	Recreational	Commercial
Quahog	1,478,576	7,561,821
Mixed	811,492	4,014,617
Chowder	199,705	865,112
Cherrystone	114,492	676,905
Littleneck	410,068	2,040,707
Ocean Quahog	0	0
Soft Shell Clam	566,550	7,174,088 **
Oyster	206,530	656,910
Bay Scallop	108,230	461,777
Razor Clam	5,400	168,380
Surf Clam	38,580	125,120
Mussel	25,195	1,975,710
Conch	700	109,500
Eel	574	4,046
Total Pounds	**2,487,516**	**18,272,872**

* Figures are from 40 municipalities.

** Commercial soft shell clams includes moderately contaminated clams processed at the DMF Shellfish Plant (2,239,620 lbs.)

Figure 5. Massachusetts Shellfish Fishery
Commercial Landings for Selected Species
1994 - 1999

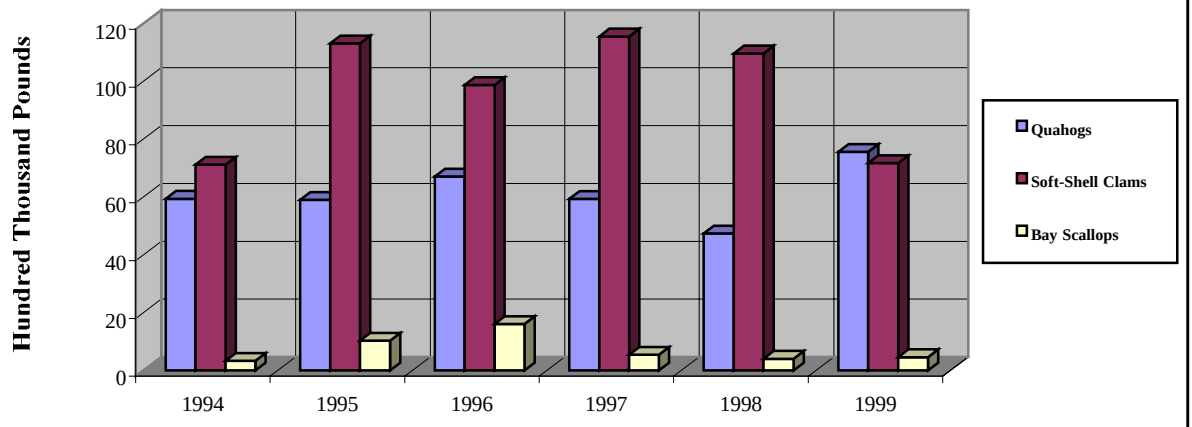


Table 2. 1999 Massachusetts Commercial Shellfish Harvest and Gear. *

County:	Barnstable	Bristol	Dukes	Essex	Nantucket	Plymouth	Middlesex/ Norfolk/ Suffolk	Total Inside Town Boundaries	** Total Outside Town Boundaries	State Total
Number Fishermen:	809	110	81	301	73	88	9	1,471	0	1,471
Harvest -- Bushels										
CLAM, RAZOR	256	60	0	671	0	1,261	0	2,247	10	2,257
CLAM, SEA	175	126	0	156	0	904	0	1,360	3,107	4,467
CLAM, SOFT SHELL	40,101	132	322	32,873	0	4,412	0	77,841	562	78,403
CLAM, STIMSON	0	0	0	0	0	0	0	0	2,000	2,000
CONCHS	732	355	10	0	441	19	0	1,556	1,536	3,092
HORSESHOE CRABS	483	0	0	0	0	0	0	483	0	483
MUSSELS, UNCLASS	23,864	71	20	22	0	3	0	23,980	30	24,010
OYSTERS, UNCLASS	8,925	434	1,219	45	1	1,450	0	12,073	0	12,073
PERRIWINKLE	0	0	0	400	0	0	0	400	0	400
QUAHOG, CHERRYSTONES	3,685	1,514	826	20	45	934	0	7,024	140	7,164
QUAHOG, CHOWDERS	3,866	2,906	2,096	0	36	600	0	9,504	97	9,601
QUAHOG, LITTLENECKS	29,196	3,732	889	192	36	2,729	0	36,774	223	36,997
QUAHOG, UNCLASS	20,951	9,520	741	52	42	1,646	0	32,953	1,367	34,320
SCALLOP, BAY	5,006	36	1,886	24	7,522	192	0	14,666	992	15,658
SCALLOP, SEA	264	0	0	0	0	66	0	330	131	461
SNAILS	0	0	0	0	0	0	0	0	10	10
Total Bushels	137,503	18,886	8,009	34,455	8,122	14,215	0	221,190	10,206	231,396
EELS, AMERICAN (LBS)	4,734	10	0	0	0	150	225	5,119	0	5,119
WORMS, SAND (LBS)	222	2	0	439	0	0	0	663	0	663
Vessels										
Engaged in Fishery	520	94	68	173	64	67	7	993	0	993
Value ($)	2,424,530	1,073,371	385,945	551,904	406,915	333,415	46,500	5,222,580	0	5,222,580
Gear Type (Number)										
Hand Devices	2,530	190	110	490	20	259	0	3,599	0	3,599
Mechanical	411	34	239	5	464	45	4	1,202	0	1,202
Pots	355	107	0	0	0	0	0	462	0	462
Hydraulic	8	2	3	0	0	0	0	13	0	13
Diver	3	9	0	0	1	3	0	16	0	16
Other	12	2	5	1	1	1	4	26	0	26

* Based on annual reports from licensed commercial fishermen.

** Includes Cape Cod Bay, Vineyard Sound, Nantucket Sound and Offshore Areas. Number of fishermen and vessels in this category are from "out of state" and are not necessarily responsible for the landings in this column.

3. Striped Bass Fishery -- 1999

The 1999 commercial fishery for striped bass was conducted within guidelines required by Amendment V of the ASMFC Interstate Fisheries Management Plan for Striped Bass. Under this declaration, all persons taking striped bass commercially had to obtain a special license from the Division, and were restricted to a specific season, July 5 through September 6, providing that the total commercial catch did not exceed 782,000 pounds. In addition, a minimum size limit of 34 inches total length was required for harvest, and each permittee had to file an annual report of their catch and effort.

During 1999, the Division issued a total of 3,578 striped bass licenses. Three hundred sixty-seven fishermen (10%) failed to file a catch report and were not issued a renewal license for 2000. Of the 3,211 fishermen who did report, 1,616 claimed that they did not fish for bass in 1999 and 156 reported that they fished but did not harvest any legal-sized fish. The remaining 1,136 reported that they caught a total harvest of 881,45 pounds of striped bass (712,817 sold and 168,637 consumed) during the 1999 commercial fishing season. The dealer survey showed a commercial catch in 1999 of 714,346 pounds. Dealer reports for the 1999 season indicate that 788, 217 pounds of bass were sold during the nine week season.

Commercial landings of striped bass during the 1999 season were monitored through a seafood dealer survey which required that all Massachusetts dealers authorized to buy striped bass directly from fishermen report their purchases weekly by telephone. If the total landings approached the 750,000 cap before the season ended, the fishery is closed through notification to the dealers and the fishermen. The Division has been able to refine its landings figures for striped bass because of this survey which requires a report not only from the dealers, but also the fishermen. Funds for the monitoring of this fishery are now being provided by the Wallop-Breaux program. Data is presented here for informational purposes only. NMFS is not invoiced for this activity.

Table 3 presents a brief summary of some of the more important data elements of the 1999 Massachusetts commercial striped bass fishery.

Table 3. 1999 Massachusetts Commercial Striped Bass Statistics.

Month	# Fishermen Fishing	Total Hours	Sub-Legal Fish Number	Sub-Legal Fish Pounds	Harvested Fish @ Number	Harvested Fish @ Pounds
July	1,443	53,007	51,923	414,122	19,743	350,704
August	1,292	48,667	46,623	400,005	23,093	418,027
September	777	18,094	21,577	175,497	5,318	96,458
October	243	6,547	8,712	72,417	923	16,265
Total	3,755	126,316	128,835	1,062,040	49,077	881,454
Average Pounds per Fish				8.24		17.96

* Based on catch reports from licensed commercial fishermen.

@ Includes consumed and sold fish.

4. Gear Type Survey -- 2000

During 1989, the DMF implemented a redesigned automated Licensing System for all license types. The system was designed and coded by Project personnel. One of the advantages of the new system is that it allows the Division to accurately determine the number of Massachusetts fishermen employing specific gear types. All licensed fishermen are now required to state their primary and secondary gear types.

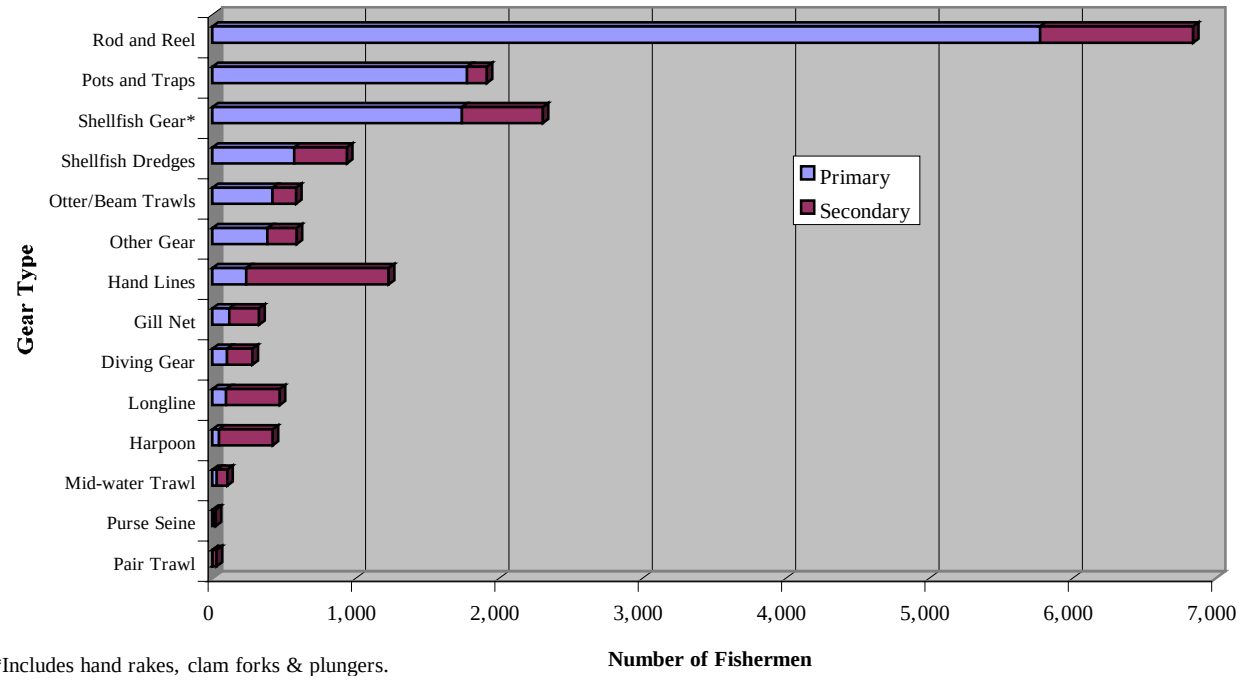
Rod and reel was the most frequently employed gear type, followed by shellfish gear, pots and traps, respectively. Most fishermen fished only one gear type. Of the fishermen using a secondary gear type, the categories hand line, rod and reel, and shellfishing gear are listed most often. A complete listing of primary and secondary gear types used, as reported by licensees are shown in Table 4. Matrices showing secondary gear types used by each primary gear used, have been run and are available, by request, from the Project. The gear type data are shown graphically in Figure 6.

Table 4. Primary and Secondary Gear Type Employed by Licensed Fishermen -- 2000

Gear Type	Primary	Secondary
Pair Trawl	1	28
Purse Seine	13	10
Mid-water Trawl	31	73
Harpoon	45	375
Longline	96	374
Diving Gear	101	178
Gill Net	118	208
Hand Lines	236	994
Other Gear	384	204
Otter/Beam Trawls	419	165
Shellfish Dredges	571	367
Shellfish Gear*	1,740	564
Pots and Traps	1,775	139
Rod and Reel	5,774	1,067
No Gear Type		4,746
Total	11,304	6,558

* Includes hand rakes, clam forks and plungers.

Figure 6. 2000 Massachusetts Commercial License Status; Primary & Secondary Gear Type Employed by Fishermen



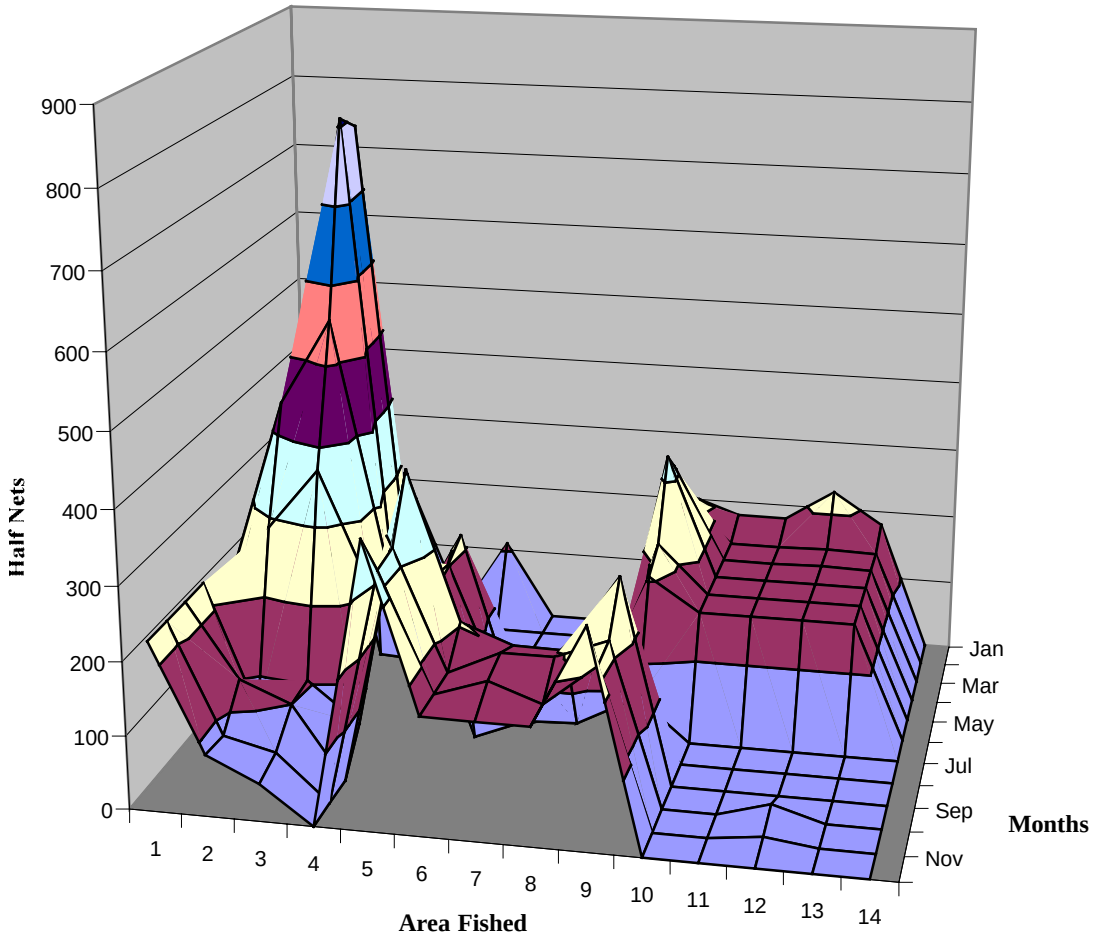
*Includes hand rakes, clam forks & plungers.

5. Gillnet Fishery -- 1999

During 1988, the DMF and the Massachusetts Marine Fisheries Advisory Commission, in an attempt to gain baseline information on the Massachusetts state waters gillnet fishery and to establish a framework to manage that fishery, declared it to be a regulated fishery. Under this declaration, all gillnetters had to obtain, for a minimal fee, a special permit from DMF. A condition of the issuance of that permit was that each applicant had to fill out an informational survey. In 1992, the survey was expanded into an annual catch report with more rigorous catch and effort data summarized by month.

One hundred and fourty-five fishermen received a regulated permit in 1999 to fish with a gillnet in state waters. Of those, 66 claimed they did not gillnet in 1999, and 4 did not file a report for their 1999 fishing activities and subsequently were not permitted to renew their license in 2000. The 75 fishermen who did file a report, reported fishing a total of 8,873 half-nets (300 foot) in 1,074 strings. Most of the effort occurred in areas 2, 3, 4, 5, 6 and 8 (essentially Massachusetts Bay - see Figure 15). Gloucester was the largest port of landing for Massachusetts gillnetters with 4,331,368 pounds of fish landed followed by Scituate at 2,800,966 pounds and Chatham with 2,563,284 pounds.

Figure 7. 1999 Massachusetts Gillnet Fishery Number of Half Nets Fished by Month by Area Fished



Referring to Figure 7, the concentration of effort in the Massachusetts Bay area in the winter and spring months is the gillnet fishery targeting dogfish and cod. This fishery also extends into area 19 in federal waters. The large peak in area 3 is largely comprised of early spring effort targeting yellowtail, cod and winter flounder. Table 5 gives a breakdown of landings by species and Figure 8 is a pie chart of the top five species by volume landed by gillnetters. Dogfish is, by far, the highest volume species for gillnetters at 6.83 million pounds. Pollock and cod a distant second and third at 1.42 million pounds and 1.35 million pounds, respectively. The gillnet fishery for bluefish is heavily restricted and monitored due to gear conflicts between gillnetters and party/charter boats. Persons engaged in the fishery must obtain a special fisheries permit from the Division and report their landings through our annual gillnet catch report. No permits were issued to prospective participants in this fishery during 1999.

Table 5. 1999 Massachusetts Gillnet Landings

Species	Pounds Landed
DOGFISH	6,834,903
POLLOCK	1,422,591
COD, GENERAL	1,351,164
MONKFISH	959,047
FLOUNDER, YELLOWTAIL	469,522
HAKE, GENERAL	461,572
FLOUNDER, WINTER	367,677
FLOUNDER, WITCH	236,022
BLUEFISH	214,395
SKATE, GENERAL	194,978
HADDOCK, GENERAL	105,967
MACKEREL, ATLANTIC	103,616
FLOUNDER, DAB	61,088
FLOUNDER, UNCLASS	24,637
CUSK	18,228
WOLFFISH	13,006
GROUNDFISH, UNCLASS	9,013
LOBSTER	5,116
HAKE, SILVER	3,708
SEA ROBIN	1,500
REDFISH	1,350
TAUTOG	737
FLOUNDER, SUMMER	564
BONITO	400
HALIBUT	48
Total Pounds	12,860,849

* Based on reports submitted by licensed fishermen.

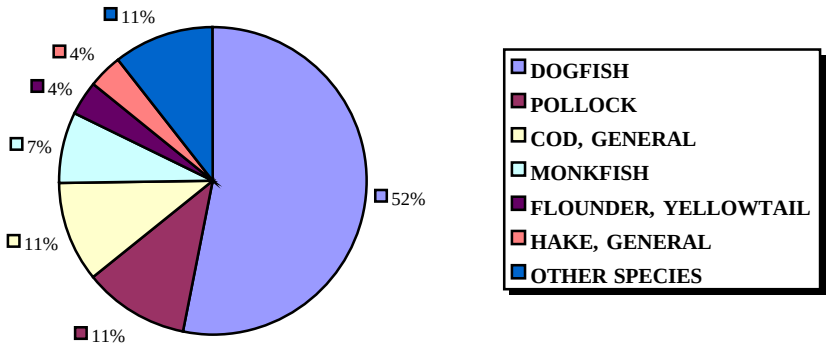


Figure 8. 1998 Massachusetts Gillnet Fishery - Top Six Species by Volume

6. Fish Pot Fisheries -- 1999

The fish pot fisheries are comprised of three regulated fisheries which target the species sea bass, conch and scup using a fish pot, or trap, of one form or another, primarily south of the Cape. In 1999, 397 permits were issued across all three regulated fisheries, with a total of 228 of these permit holders indicating that they fished for one of the three regulated species. Table 6 shows a complete breakdown by fishery of permit information. There is a considerable overlap between fisheries, where 20 fishermen had only one of the three regulated permits. In all, 181 fishermen were issued the 397 total permits, 106 of them having permits in two of the three fisheries, and 55 having permits in all three fisheries. In addition, of those that reported fishing in 1999, 65 fishermen indicated that they had a coastal lobster permit, and 26 of those consider their regulated species catch as incidental to their lobster catch.

Table 6. 1999 Fish Pot Fisheries Permit Information and Total Landings

Regulated Fishery	Permits Issued	Reported Fishing		Reported Not Fishing		Not Reporting		Total Landings (lbs)
		Number	Percent	Number	Percent	Number	Percent	
Sea Bass	169	84	50%	82	49%	3	2%	551,900
Conch	161	90	56%	65	40%	6	4%	1,604,908
Scup	67	54	81%	12	18%	1	1%	184,884
Totals	397	228	57%	159	40%	10	3%	2,341,692

Landings of all three targeted regulated species totalled approximately 2.4 million pounds, with an additional incidental catch in the sea bass fishery of scup and tautog totalling 12,324 pounds and 18,058 pounds respectively. Ninety-six percent of the landings were caught in Nantucket Sound, Vineyard Sound and Buzzards Bay (areas 10, 13 and 14 on Figure 15). Eighty-three percent of the landings were caught during the months June through October, and top ports were Edgartown, Barnstable,Tisbury and Fairhaven respectively, due in large part to the large conch landings in those towns. See Figures 9, 10 and 11 for landing totals by area, month and county respectively, and Figure 12 for CPUE information.

Figure 9. 1999 Massacusetts Fish Pot Fisheries, Total Landings by Area

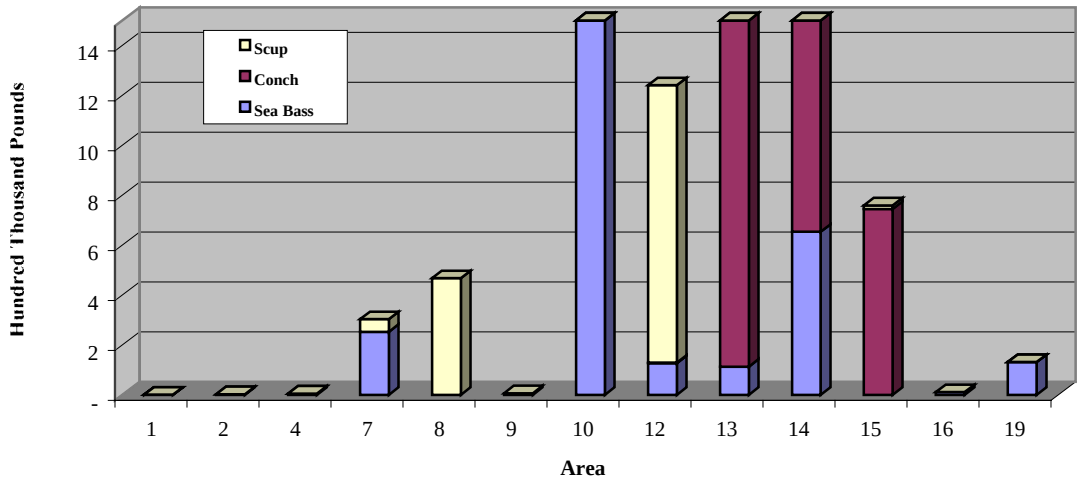


Figure 10. 1999 Massachusetts Fish Pot Fisheries, Total Landings by Month

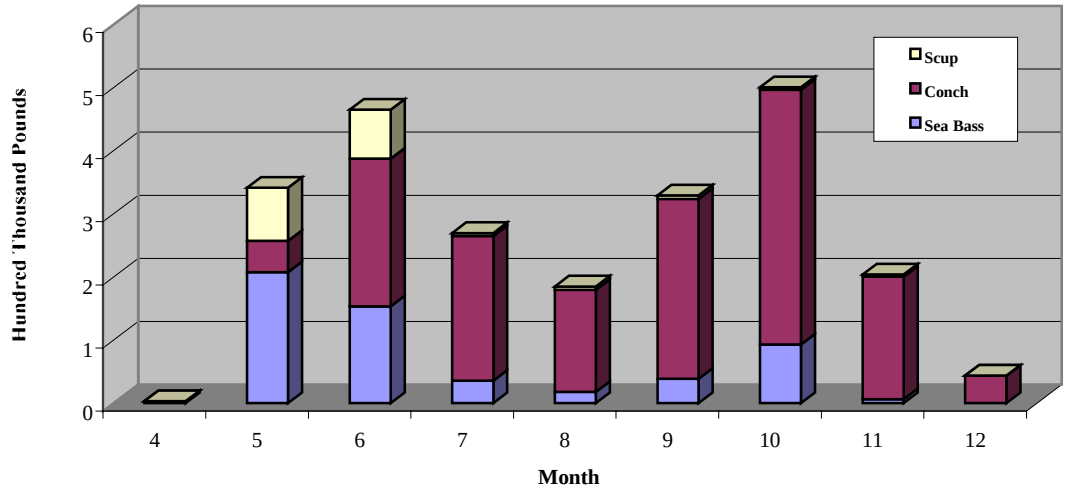


Figure 11. 1999 Massachusetts Fish Pot Fisheries, Total Landings by County

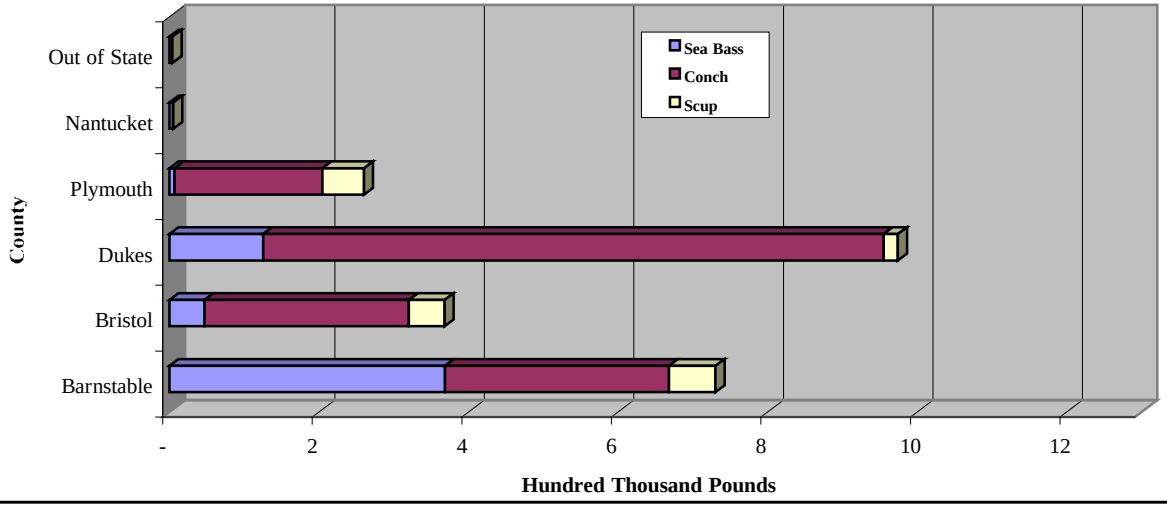
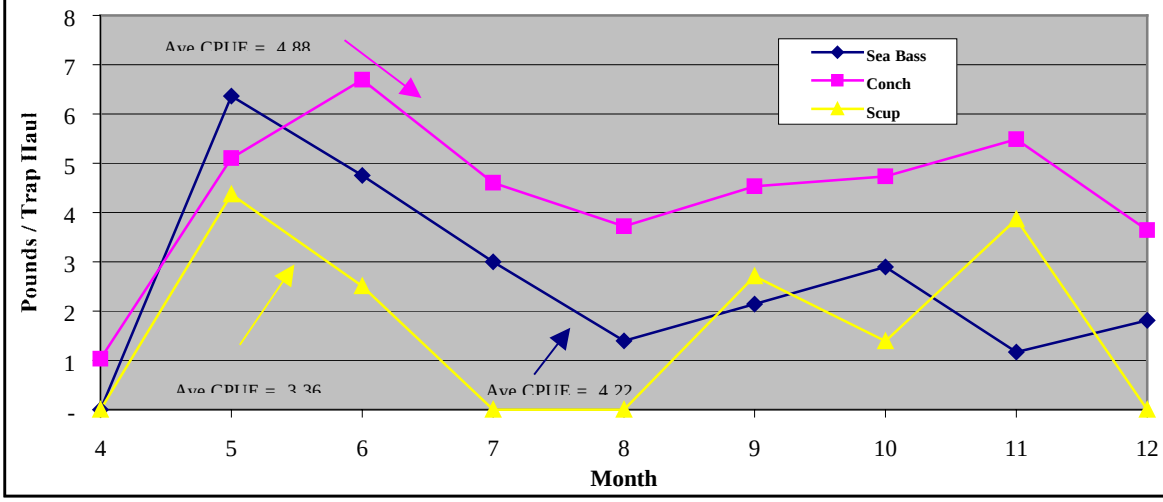


Figure 12. 1999 Massachusetts Fish Pot Fisheries, Catch Per Unit Effort



JOB 2 -- MONTHLY REPORTS

Objectives: To obtain information on certain territorial water finfisheries which are managed by the Division; licensed commercial fishermen participating in these fisheries are required to file monthly reports of their fishing activities.

1. Fish Trap Fishery -- 2000

The Project collects monthly trap fishery landing statistics from licensed fish trap operators along the coast. During the 2000 fish trap season, which lasted from April through September, trap operators reported fishing a maximum of 12 traps in any given month (May). There were a total of 332 trap-lifts. Landings were 951,221 pounds of various species. Atlantic mackerel, squid, scup and black sea bass were the most abundant species landed, respectively. The 2000 landings are higher than the previous year primarily due to increased landings of squid and scup. Detailed landings by month, area and species are presented in Tables 7 and 8. Figures 13 and 14 show seven-year trends in total landings and landings by species, respectively. See Appendix B for a map showing active fish traps for 2000.

Figure 13. Total Massachusetts Fish Trap Landings, 1994 - 2000

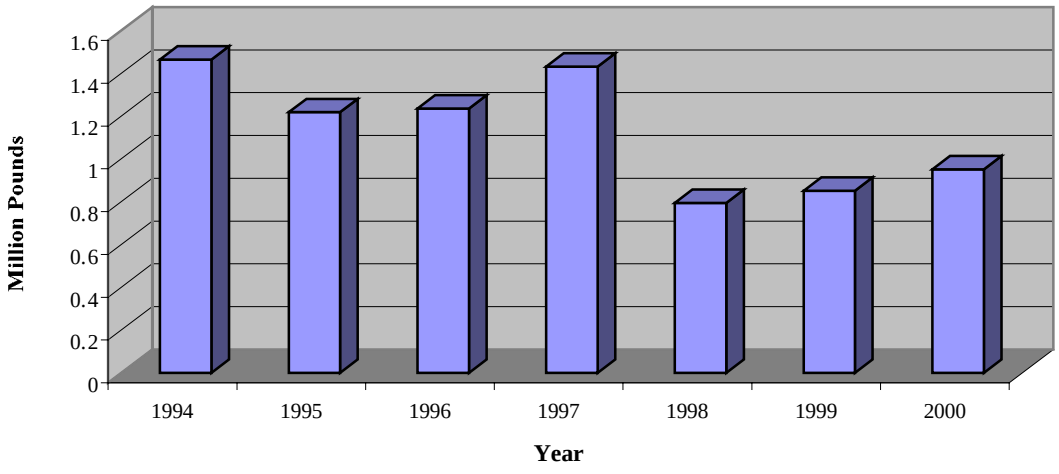


Figure 14. Massachusetts Fish Trap Landings for Selected Species, 1994 - 2000

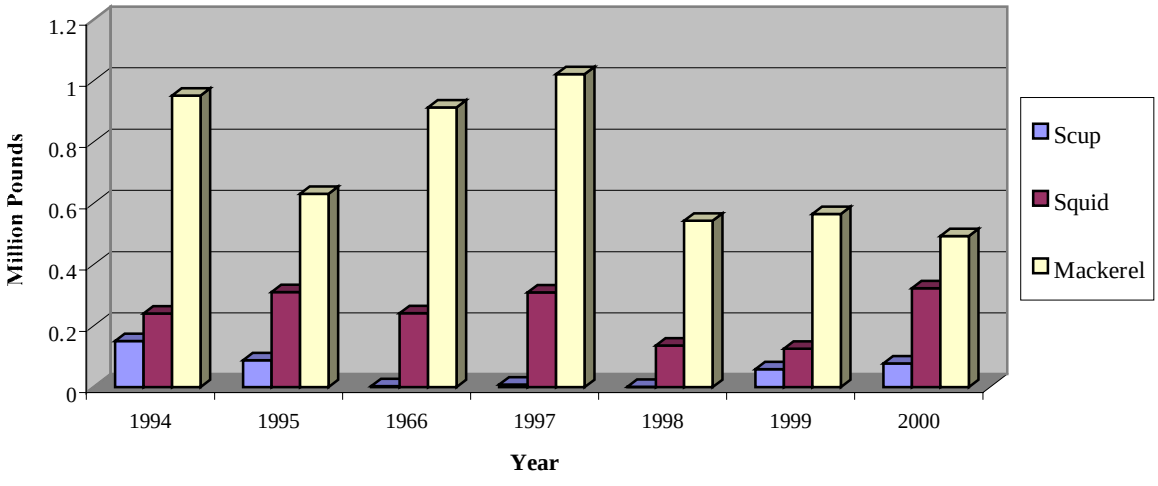


Table 7. 2000 Massachusetts Fish Trap Harvest by Month as Reported by Fishermen

Effort	Apr	May	Jun	Jul	Aug	Sep	Total
Max Traps Fishing	10	12	5	2	2	2	33
Trap Lifts	11	208	17	26	42	28	332
Species -- Pounds Harvested							
ALBACORE	0	0	0	23	75	1,265	1,363
AMBERJACK	0	0	0	0	0	27	27
BLUEFISH	0	2,332	1,260	1,570	3,858	2,056	11,076
BONITO	0	0	0	271	48	37	356
BUTTERFISH	0	8,090	0	633	1,788	1,953	12,464
FLOUNDER, SUMMER	0	2,043	602	963	316	0	3,924
HERRING, UNCLASS	0	1,200	0	0	0	0	1,200
MACKEREL, ATLANTIC	1,580	491,195	475	0	0	0	493,250
MACKEREL, KING	0	0	0	148	252	1,215	1,615
MACKEREL, SPANISH	0	0	0	4	6,365	4,677	11,046
MENHADEN	0	900	0	0	0	0	900
SCUP	0	76,502	191	0	0	0	76,693
SEA BASS, UNCLASS	0	13,974	656	0	0	0	14,630
SQUID, GENERAL	973	321,525	110	0	0	0	322,608
TAUTOG	0	51	0	0	0	0	51
WEAKFISH	0	18	0	0	0	0	18
Total	2,553	917,830	3,294	3,612	12,702	11,230	951,221

Table 8. 1999 Massachusetts Fish Trap Harvest by Area as Reported by Fishermen

Area	3	10	Total
Max Traps Fishing	2	31	
Trap Lifts	19	313	332
Species -- Pounds Harvested			
ALBACORE	0	1,363	1,363
AMBERJACK	0	27	27
BLUEFISH	0	11,076	11,076
BONITO	0	356	356
BUTTERFISH	0	12,464	12,464
FLOUNDER, SUMMER	0	3,924	3,924
HERRING, UNCLASS	1,200	0	1,200
MACKEREL, ATLANTIC	62,465	430,785	493,250
MACKEREL, KING	0	1,615	1,615
MACKEREL, SPANISH	0	11,046	11,046
MENHADEN	900	0	900
SCUP	0	76,693	76,693
SEA BASS, UNCLASS	0	14,630	14,630
SQUID, GENERAL	0	322,608	322,608
TAUTOG	0	51	51
WEAKFISH	0	18	18
Total	64,565	886,656	951,221

See Figure 15 for Map of Areas

Figure 15. 1999 Massachusetts Division of Marine Fisheries Statistical Reporting Map
Areas 1 through 14 comprise the territorial waters of the Commonwealth

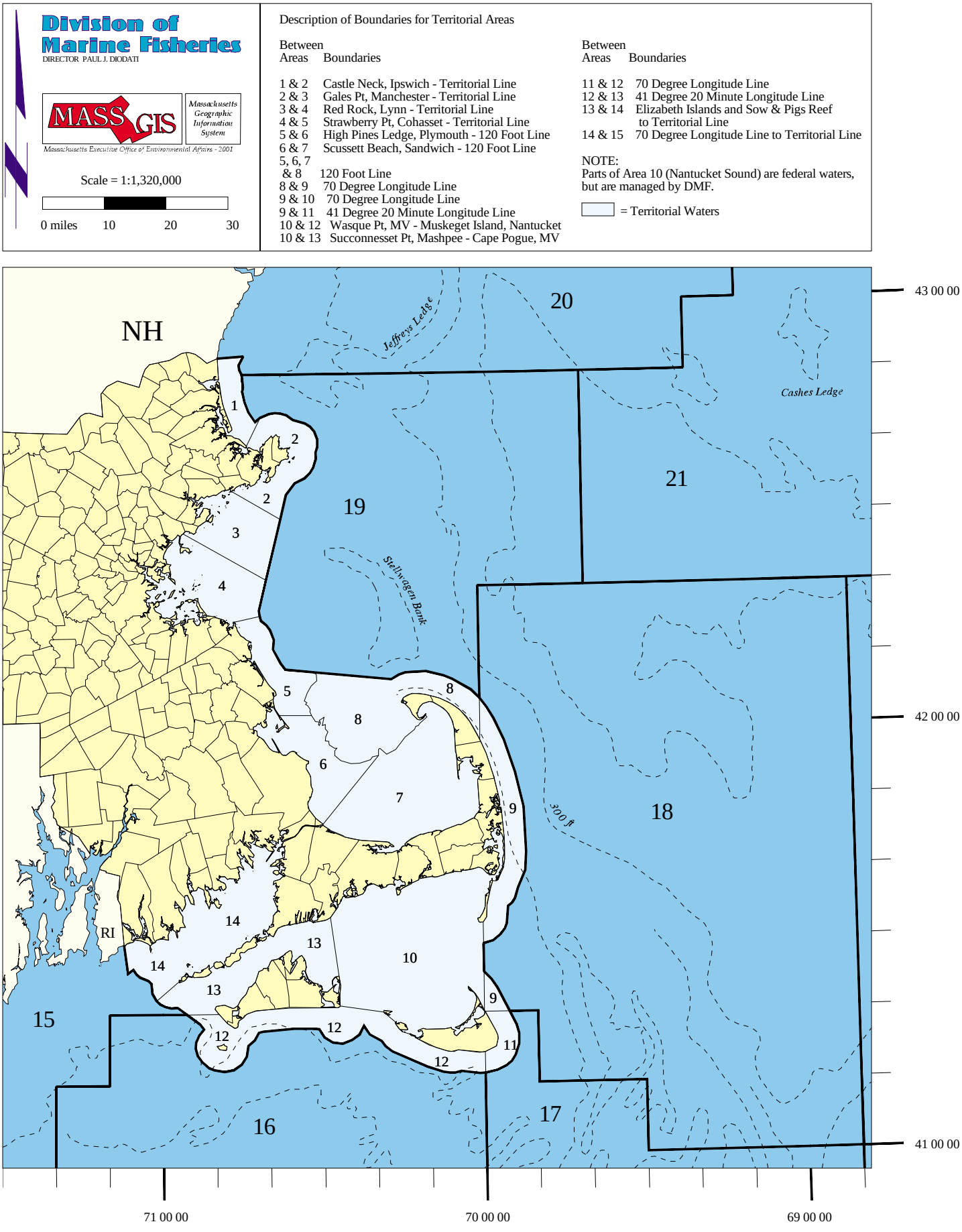
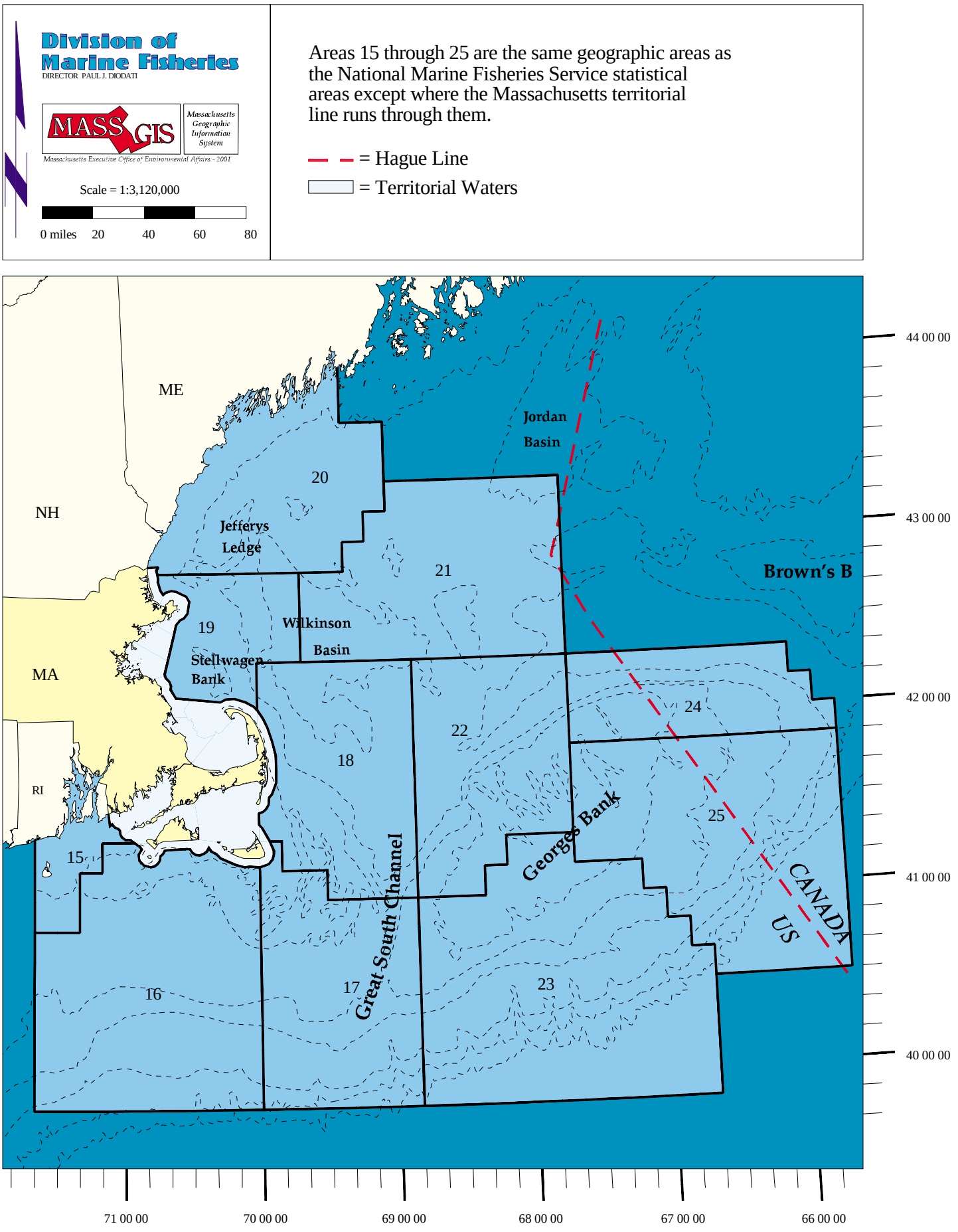


Figure 16. 1999 Massachusetts Division of Marine Fisheries Statistical Reporting Map



JOB 3 -- FISH DEALER REPORTS

Objectives: To obtain special data from seafood dealers licensed by the Division.

1. Annual Questionnaire

In 1999, the Division issued 1,583 seafood dealer licenses to wholesale and retail dealers and seafood brokers and shippers. In the past, the Project used an annual questionnaire distributed to each dealer at the time of license renewal to maintain a database of general contact information, and the products that they handled. The Fisheries Economist on the project decided not to continue to update this database.

JOB 4 -- DISSEMINATION

Although 1999 lobster fishery information was keypunched into the project's statistical database, the annual publication for 1999 was not completed until after the project period due to a shortage of personnel on the project. That document (entitled 1999 Massachusetts Lobster Fishery Statistics is appended to this report (Appendix A). Summary statistics of the 1999 lobster fishery statistics were published in the Massachusetts Lobsterman's Association Newsletter.

Project personnel submitted finfish, lobster and shellfish data to the National Marine Fisheries Service for their 1999 "shore and boat survey" and for inclusion in Fisheries of the United States 1999 and Fisheries Statistics of the United States.

Project personnel responded to many requests for fisheries related data. There has been a marked increase in the number of data requests since the inception of quota managed fisheries and the numerous plan amendments to interstate and Federal fisheries management plans. These requests were made by Division personnel and projects, other state agencies, federal agencies, consultants, the electronic and print media, special interest groups and the general public.

JOB 5 --INTERJURISDICTIONAL FISHERIES STATISTICS SYSTEMS

The Project Leader (Charlie Anderson), as the New England States' member on the Operations Committee of the Atlantic Coastal Cooperative Statistics Program (ACCSP) attended numerous meetings of the Operations Committee, the ACCSP Coordinating Council and the Industry Advisors. He was elected vice-chair of the Committee. The 2001ACCSP Operations Plan was completed and accepted by the Coordinating Council. The Operations Committee began work on a new Funding Decision Policy. The Committee tasked several other ACCSP committees relative to the continued development of Technical Series Document V, The Biological and Discard (At Sea Observer) module of the program.

The Operations Committee evaluated about 50 grant requests (including the Operational budget for the ACCSP). In all, the Committee recommended almost $ 3 Million in grants to the ACCSP partners. The recommendations were accepted by the Coordinating Council.

Confidentiality of data and system security continued to be major issues that are constantly addressed by the Committee.

JOB 6 -- LOBSTER SEA SAMPLING DATA ENTRY

Data entry for the DMF Lobster Sea Sampling Program's 1999 sampling data was completed in February of 2000. The database contained biological sampling records from 79 lobster trips spanning May – November, 1999, for a total of 15,103 trap-hauls and 31,640 individual lobsters. Most of the 2000 data was also keypunched during the project period, with completion expected in early 2001.

JOBS 7 & 8 -- MANAGEMENT INFORMATION SYSTEMS AND TECHNICAL ASSISTANCE

The Project Leader (Charlie Anderson) continued to serve as the DMF parent agency's (Department of Fisheries, Wildlife and Environmental Law Enforcement) Chief Information Officer. He is also a member of the Executive Office of Environmental Affairs (EOEA) Systems Integration Team, which is responsible for the daily operation and oversight of all of EOEA's information systems components, including a 30 + server BANYAN Vines Wide Area Network and the EOEA Data Center, which serves Oracle and Arc/Info Applications.

The project leader also spent considerable time in obtaining funding for the development the Division of Marine Fisheries commercial, seafood dealer and special permit application. Funding was made available by the Department of Fisheries, Wildlife and Environmental Law Enforcement and the Information Technology Division of the Executive Office of Administrative Affairs. After obtaining the money for the development, the Project Leader negotiated a contract with Oracle Consulting Services to assist the project staff with the development. The project leader is serving as Executive Sponsor of the project. The new application, while slightly behind schedule, has been received by the end users who are testing it. Their initial reaction to the test version has been extremely positive. The development effort is under budget.

The project leader was the Year 2000 Coordinator for the Department of Fisheries, Wildlife and Environmental Law Enforcement. A considerable amount of time had been spent checking and converting major applications for the Y2K bug. All equipment was checked and capital funding was obtained to replace two major analytical chemistry instruments and radio equipment for the Division of Law Enforcement's radio network. Disaster recovery and contingency plans were drafted for all major functions and automated activities. As a result, January 1 2000 in the Department and it's Divison's was a non-event, with no systems failures.

The Senior Systems Analyst (Thomas Hoopes) on the project spent approximately sixteen percent of his time configuring specific hardware and software to conform to the network and needs of the users. This is considerable drop from prior years as the network environment existed in a relatively stable state over the project period. The current version of Vines has been relatively trouble-free, and all PC's were running NT workstation 4.0, a solid desktop operating system. Major tasks included but was not limited to the following:

- Y2K checks at the beginning of the new year.
- An Intranet web site was created, using an old server, initially to provide information to Gloucester facility employees. It became increasingly clear that this was an excellent way to provide basic information to all DMF employees and beyond, and it quickly evolved into a site which provided information to the entire agency as well as other agencies and individuals within the state's wide area network. The web site now provides phone directories, instructions, links, policies, computer help, shellfish designated growing areas, FISH2000 information and quota managed fishery updates. A

good amount of time was spent re-configuring the old server, which ran Banyan Vines originally, to run Windows NT server.

- One small computer order was initiated involving notebook PC's for the Department. These arrived in May of 2000.
- Continued support for four DMF locations (Gloucester, Pocasset, Newburyport and Vineyard Haven), two of which have servers, including Vines accounts, mail and file services, and Microsoft NT 4.0 workstations.
- Continued to maintain the DMF computer inventory database.
- Continued to maintain servers and phone systems at the Gloucester and Pocasset offices.
- Four new phone lines, two each in Gloucester and Pocasset, were added to accommodate temporary employees moved out of Boston. Those lines had to be added to the PBX systems at each site.
- Attended ITD meetings and reviewed analysis plans for the forthcoming migration from Banyan Vines to a Microsoft Windows 2000 network operating system, including Active Directory and Exchange 2000.
- Helped the Sportfish Project to analyze and install a new time tracking software package called Timesheets.

Other miscellaneous tasks, mostly concerning support for end-users and troubleshooting. Also provided support with the Department's move from the Saltonstall building in Boston to temporary locations as well as support at the Division of Fisheries & Wildlife's site in Westboro as their network administrator passed away during the time period, and the position was not filled for several months.

Approximately twenty percent of the assistant project leader's time was spent working, as the project manager, on a new DMF licensing system, called FISH2000, to replace the existing client-server system. DMF contracted Oracle Consulting to help build a system based on the existing SPORT data model to provide a new web-enabled system that would allow the agency the flexibility of hosting the application both internally (intranet) or externally (internet). At the end of the project period, the system was close to production mode.

The assistant project leader took over as Chair of the Atlantic Coastal Cooperative Statistics Program's Technical Computer Committee, attending a three-day meeting in Tampa, Fla., in March, and running a two-day meeting in Gloucester in August. The latter meeting included a visit to an application service provider in Andover MA (Navisite), to explore the possibility of having such a site host the ACCSP system.

Considerable time was spent on activities normally undertaken by the project's Statistician (such as commercial fishery statistics collection and dissemination and the coastal lobster audit program). Since this position was vacant from March through the end of the project period, the assistant project leader took on all of those duties as best possible. Much of the published reports fell behind schedule as a result. Twenty-five percent of his time was devoted to such tasks in addition to working to fill that position and plan for the future of the project. The vacant Statistician's position was posted, but remained unfilled because of budgetary problems. That position was re-posted at the end of the project period. A grant proposal was written and submitted to ACCSP to hire a planner during 2001 to help DMF plan the migration from a annual catch reporting collection program to a trip-level collection program for commercial fishery statistics over the next few years.

The assistant project leader helped the SportFish project write an RFR and install a new database application called Timesheets. This application, which runs against an Oracle database, will keep track of employee's time by project.

The project's EDP Programmer IV (Karen Cannell) was reclassified to Systems Analyst IV effective January 1, 2000. For the scope of the Federal Aid project, her duties with respect to Management Information Systems and Technical Assistance remained the same.

The SA IV performed enhancement and maintenance on the Division's production Oracle applications, worked on the specification, design and development for the revised permitting system, FISH2000, provided technical advice and assistance to the SPORT Licensing program and attended Oracle training.

Application and database maintenance for the Fisheries Information System (FISH) and Water Quality systems were performed during the early part of the project period. This included numerous bug fixes to the main forms of the Water Quality system, to accommodate water and meat sample data entry and for classification area and station maintenance.

The FISH data entry form was upgraded to allow for gear types in the Fluke and Dogfish fisheries, to automatically link Special permits to Commercial permits held by the same License Holder, and to provide user interface improvements for faster data entry. The SA IV corrected operational problems with the Statistics Data Entry form, and rewrote the Statistics Transaction Journals to better reflect the needs of the user and the current Oracle tools.

The SAIV executed portions of the usual year end processing suite as needed by DMF Licensing personnel, and as summary for the last year of the Fisheries Information System and as comparison for the data conversion into the FISH2000 system.

A considerable amount of the SA IV's work was devoted to specification, design, development and documentation of the FISH2000 system, using Oracle Designer, Developer and the new tool WebDB. The SA IV worked with the Oracle consulting team to provide guidance on business rules and practices, to perform development tasks and to gain working knowledge of the Designer and WebDB tools. Essential to this effort was developing a full understanding of the SPORT application code, as the FISH2000 system provides all the functionality of the existing SPORT application, and was developed so as not to preclude combination of the two applications in the future. Tasks were to determine overall system requirements, finalize a database design that met the needs of DMF and was compatible with SPORT, and develop detailed forms and reporting requirements following the overall project schedule. The SAIV ensured that all functions of the Fisheries Information System, including the Year End Reporting component, were provided for or bettered in the FISH2000 system. She assisted in the development of the Maintenance, Accounting and Licensing modules, and with development of WebDB and Report Builder reports to provide for all reporting requirements.

A small percentage of the SA IV's time was devoted to the SPORT Licensing program. She provided technical advice on operations and direction on a per-request basis. She reviewed existing accounting modules and developed an enhancement to incorporate an Internet payment convenience fee. Towards this end, she developed a module that would calculate Internet (credit card) payment processing fees, including a set fee for postage and handling and a set percentage to offset credit card processing fees. She made recommendations on solutions to technical problems in and out of scope of the warranty. She reviewed the SPORT application in view of data integrity and which portions of that application could be readily applied to the FISH2000 application. She participated on the interview panel to select a Database and System Administrator for the SPORT application.

The SA IV attended Oracle training in Java Application Development with JDeveloper. This course was in preparation for working with the SPORT application and in keeping with the latest Oracle development

tools.

JOB 9 -- GEOGRAPHIC INFORMATION SYSTEMS

The assistant project leader spent approximately twenty-five percent of his time maintaining the environmental monitoring information system (stored in Oracle with a spatial component in Arc/Info), fulfilling many requests for plots and the development of a new data coverage. This included:

- Common use GIS ArcView PC's were installed and maintained in both the Gloucester and Pocasset facilities. This required updating MassGIS coverage data on 9-gigabyte external hard drives attached to the PC's as well as user support.
- Enhancing all of the Oracle reports that were converted to a GUI interface for this application so that they worked properly, and adding newly requested functions. Most of the reports had to be reformatted so that ASCII output could be accommodated. One report was completely overhauled, and considerable time was spent fine-tuning complicated queries to not only provide correct results, but also to complete in an acceptable amount of time.
- Maps of all the monitoring areas were created and converted to PDF format and made available on the new Intranet web site.
- A new coverage detailing a tidal dye study off of Nantucket was created for the shellfish project.
- Fulfilling several data requests for environmental monitoring data in plot and or electronic format.
- Producing a point coverage of all sampled trawl locations from 1990 forward for the lobster investigations project based on lat/long coordinates. This involved a fair amount of work as it meant accommodating the flat-file nature of that project's data, and then updating a large amount of erroneous data. As a result, only the most recent data set for 1999 was completed, with plans to complete past years over time.
- Attended a meeting as a kick-off to producing a state-wide coverage of shellfish habitat by species. This project will be funded by Coastal Zone Management and will take place mainly over the course of 2001.

APPENDIX A

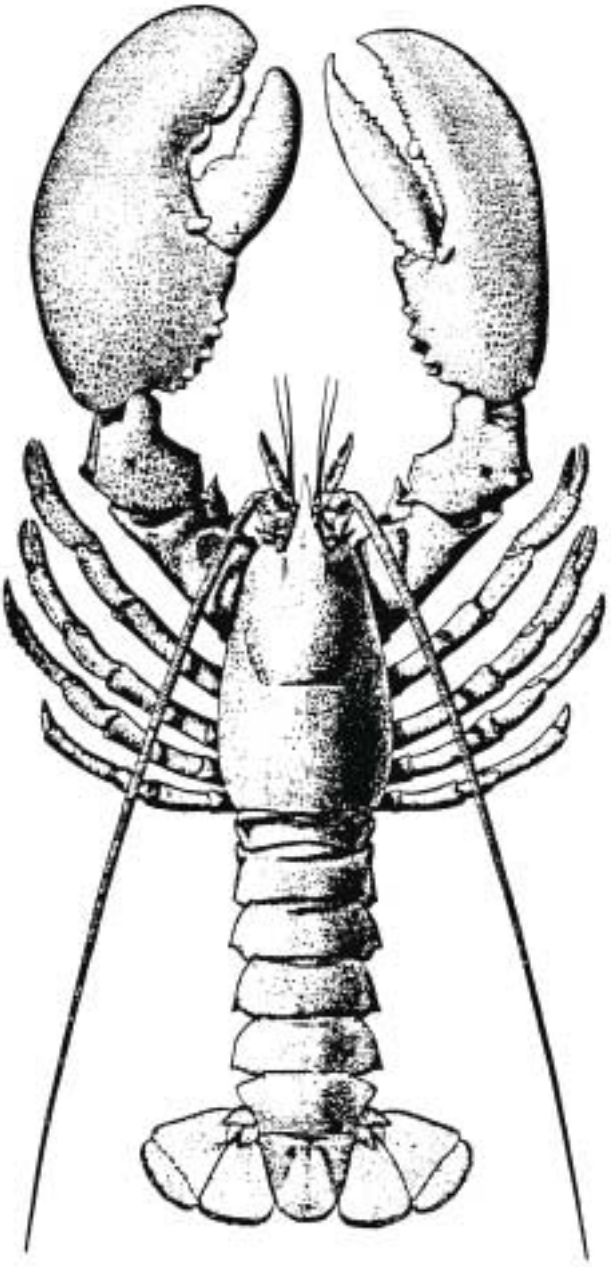
1999 MASSACHUSETTS LOBSTER

FISHERY STATISTICS

1999

Massachusetts Lobster Fishery Statistics

Holly M. McBride
Thomas B. Hoopes



MASSACHUSETTS
DIVISION OF MARINE FISHERIES

1999
MASSACHUSETTS
LOBSTER FISHERY
STATISTICS

by

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Technical Series 34

A contribution of
Interjurisdictional Fisheries Act
(P.L.11-407) Project (NA06FI0001)

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Bob Durand, Secretary
Department of Fisheries, Wildlife and Environmental Law Enforcement
David M. Peters, Commissioner
Division of Marine Fisheries
Paul J. Diodati, Director

INTRODUCTION

The commercial lobster fishery of Massachusetts is the most economically important fishery conducted within the territorial waters of the Commonwealth. The overall importance of the fishery both in New England and the Mid-Atlantic states, has focused the attention of federal, regional and state fishery managers on this species. In the early 1970's, in an attempt to standardize management of the fishery, the federal and state governments developed an overall lobster fishery management plan under the auspices of the State-Federal Fisheries Management Program. However, with the passage of the Magnuson Fishery Conservation and Management Act in 1976, the New England Fisheries Management Council, in cooperation with the Mid-Atlantic Council, developed and implemented a management plan for the entire Atlantic Coast lobster fishery. The basis and success of any such plan is an accurate statistical database. The Commonwealth of Massachusetts, with funding from the National Marine Fisheries Service, has been collecting annual reports from licensed lobster fishermen since the early 1960's. In the past these data were used primarily for descriptive and informational purposes, and occasionally for management. With the emphasis on Federal management, however, these data have provided the respective management agencies with the information they need to protect the interests of Massachusetts' lobstermen and ensure a productive fishery in the Commonwealth.

During the period 1975 - 1980, the number of coastal commercial lobster permits was limited by law to 1300, with an additional ten percent issued to proven hardship cases each year. In 1981, a statutory change mandated the establishment of a permanent waiting list from which 100 new permits were issued. Thirty special additional permits were also awarded to full-time commercial fishermen who met certain criteria. From 1982 to 1987, 80 list permits and 20 special additional permits were issued each year. In 1988, the issuance of new coastal permits was suspended. From 1988 to 1993, license transfers were allowed only within the immediate family, and if a license was allowed to expire, it was retired. In early 1993, a new regulation was promulgated by the DMF establishing broader eligibility criteria and new procedures for the transfer of Coastal Commercial Lobster Permits. As a result of these measures, the number of permits has declined from an all time high of 1,865 in 1988 to a more manageable 1,549 licenses today. The new system has also allowed for more orderly turnover in the industry. The new transfer procedures provide for transfer to employees (captains, deck hands, etc.) and persons on an established waiting list in addition to transfers within the immediate family. Only those licenses that have been actively fished for four out of the past five years according to catch reports filed with the Division may be transferred. The person to whom the permit is transferred must prove that he/she has at least one year of experience in the commercial lobster pot fishery or two years of experience in commercial fishing. All transferees must be owner/operators of the new business. Transfer activity for calendar year 1999 is described on Page 2.

This report is the thirty-third annual publication of data compiled from the catch reports of licensed lobster fishermen. Data were presented in a standardized format through 1979. In 1980, the presentation was enhanced as a result of improved collection and analysis methods. This publication represents the fourteenth year in which the data processing and analysis have been completely automated. Areal data presented in this report conform to the National Marine Fisheries Service statistical reporting areas. This report does not, however, cover the scope of the Project's existing database and computational capability. Requests for expanded information, or questions concerning this publication, should be directed to the Division's Statistics Project in Gloucester, MA: (978) 282-0308.

This report has been prepared by personnel of the Division of Marine Fisheries Information Systems and Fisheries Statistics Project, funded jointly by the Commonwealth and the National Marine Fisheries Service under the Interjurisdictional Fisheries Act (Public Law 11-407). The preparation of this report would not have been possible without the cooperation of licensed lobstermen who provided the information on their annual reports. Special thanks go to Ann Spires who continues, year after year, to interpret and keypunch, with special care and accuracy, the type of reports that fishermen are likely to fill out. Thanks also go to Charlie Anderson, who heads up the project, for his help with system development and upgrades and for his suggestions concerning this publication. These two people are as important to this process as we are, and without them this publication would not be possible. The authors also wish to acknowledge the assistance of Bruce Estrella from our Lobster Biology Project and Eileen Feeney and Kevin Creighton from our permitting office.

SOURCE OF DATA

"*No person may fish for or take lobster in coastal waters or land lobster in the Commonwealth without a permit issued by the Director of the Division of Marine Fisheries*." (Chapter 130, Mass. G.L., Section 38). Chapter 130, Mass. G.L., Section 33, requires any person so licensed to file an annual report of their catch by January 31 for the preceding calendar year. In 1980, a dual reporting system was established. Commercial lobstermen (coastal, offshore and seasonal(student)) received a detailed catch report form with their license renewal application. This report requests the following information: method of fishing; number and type of gear used; effort data (set-over days, number of trips per month, etc.); pounds of lobster caught; areas fished; principal ports of landing; and information relative to the vessels and traps used in the fishery. Recreational fishermen are asked to report on their license renewal application form the number of lobsters taken during the previous year, hours dived and the maximum number of traps fished. Project personnel sort, edit, tabulate and interpret data from all reports received. Data presented in this publication are based on catch reports actually received as of April, 2001 and are not expanded to represent all of the permits issued in 1999.

COASTAL LOBSTER LICENSE TRANSFER

During 1993, the Division promulgated regulations to broaden the criteria for the transfer of a coastal lobster license from one individual to another. The intent of the new legislation was to create more options for lobstermen who wish to retire and leave this limited entry fishery. During calendar year 1999, the Division authorized the transfer of 46 coastal lobster licenses. Twenty of the transfers went to 'captains' who were previously authorized to fish another holder's license and who had fished that holder's license for at least twelve months prior to transfer. Nine transfers were allowed within the holder's immediate family (and would also have been allowed prior to the new regulation). Twelve transfers were made directly from the holder to a sternman with a documented fishing history. Nine lobstermen advertised their coastal lobster businesses to persons on a waiting list maintained by the Division and subsequently transferred their permits. Twenty-six licenses were forfeited to the Division in 1999; thirteen of these coastal lobster permits were issued directly to waiting list applicants, and the remaining thirteen licenses were permanently retired.

EXPLANATION OF TABLES

All data presented in this publication are broken down into two basic categories: the first is **"territorial"** which represents data pertaining to all lobstering activity taking place within the territorial waters (3 mile line) of the Commonwealth (Areas 1-14 on Figure 1A); the second is **"non-territorial"** which represents all data beyond those waters (Areas 15-25 on Figure 1B). In 1990, the statistical reporting map was revised to reflect the territorial / non-territorial breakdown and to conform to the National Marine Fisheries Service's statistical reporting areas. Figures 1A and 1B show the statistical reporting areas used by the Division to collect most commercial fisheries data in the Commonwealth.

Figure 1A. 1999 Massachusetts Lobster Fishery; Statistical Reporting Map Showing Territorial Waters and Outlying Areas

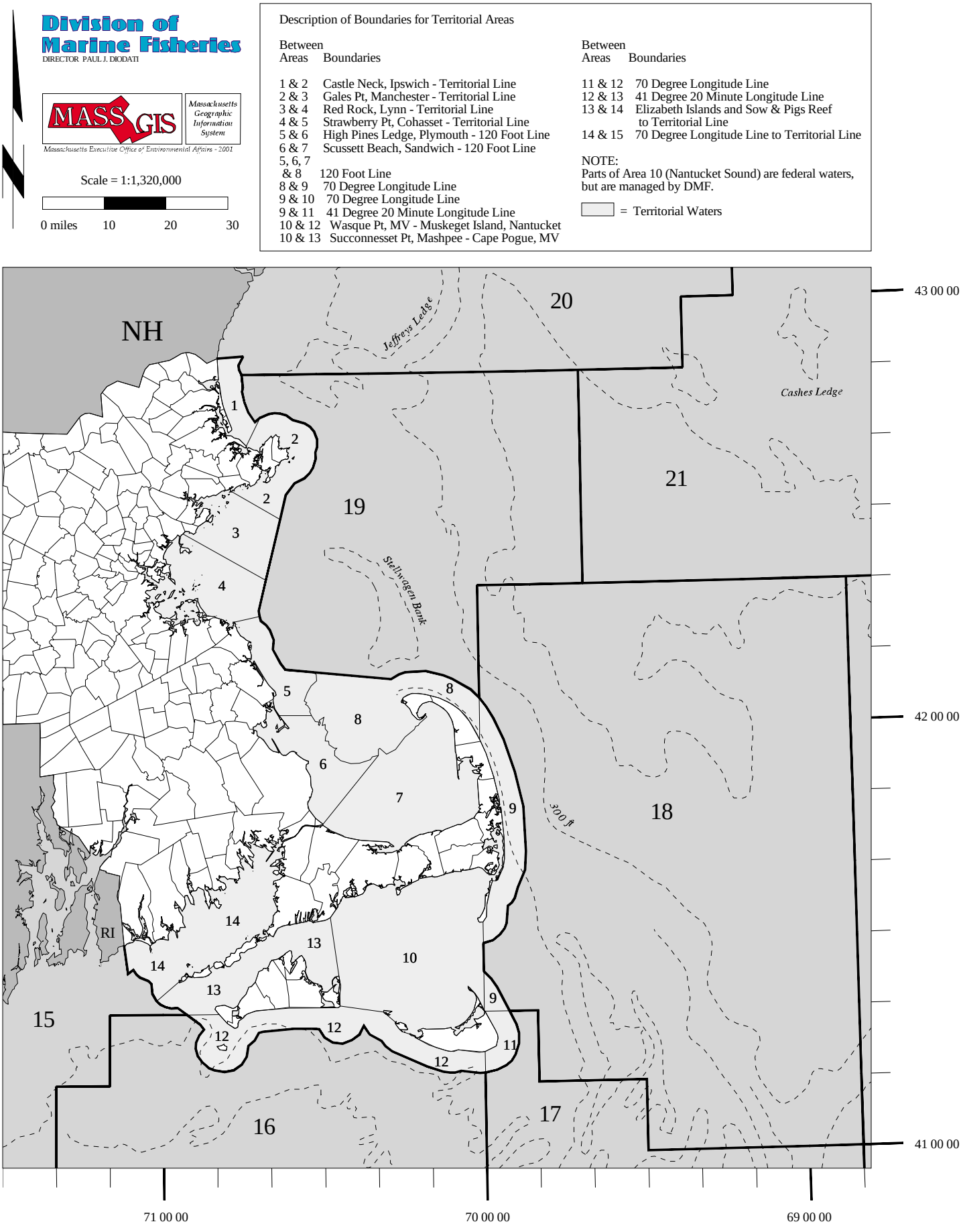
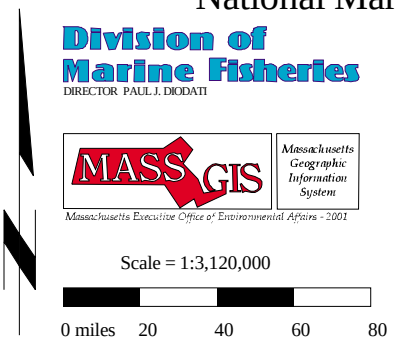


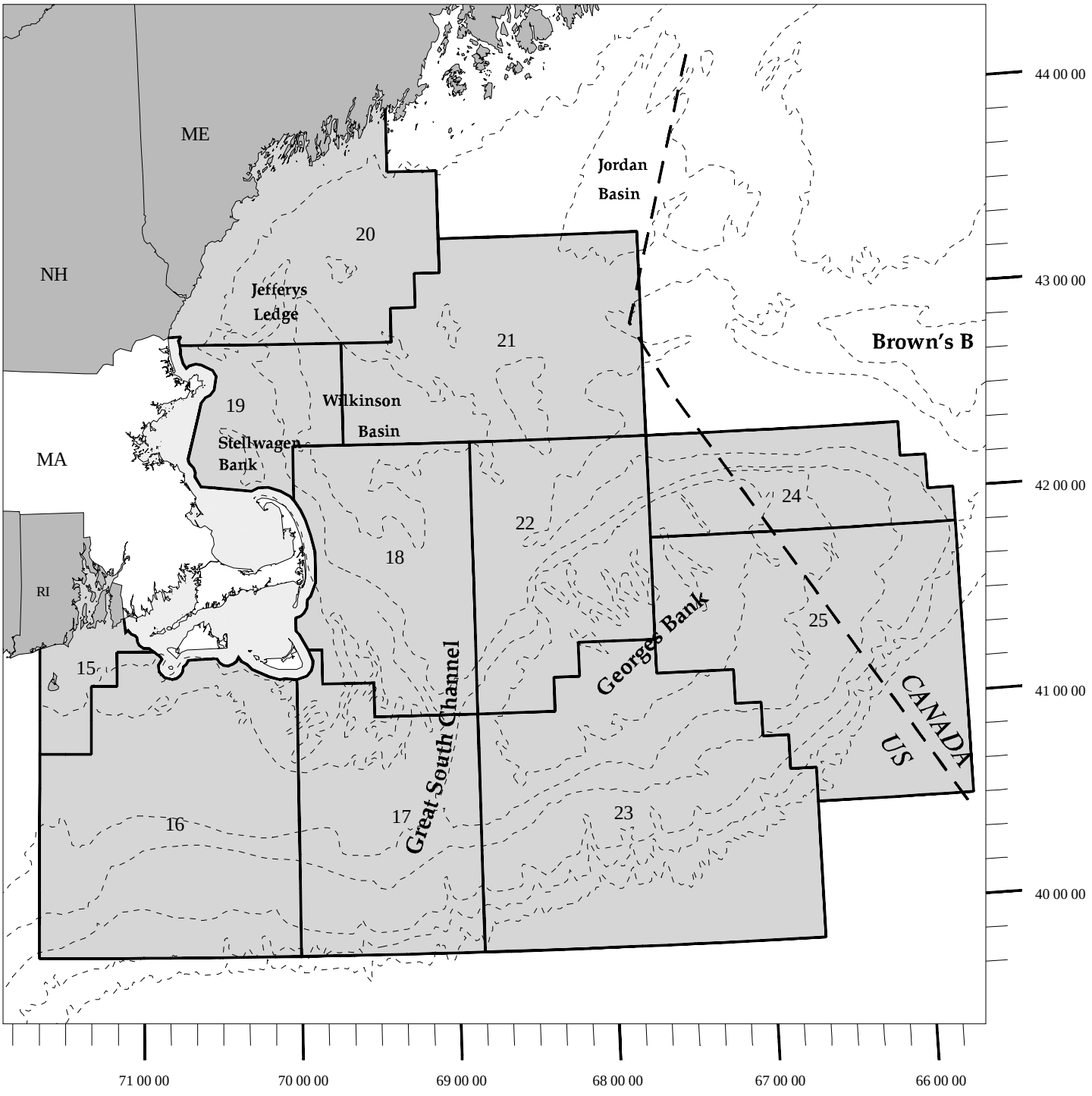
Figure 1B. 1999 Massachusetts Lobster Fishery; Statistical Reporting Map Showing Offshore Areas (which correspond to the National Marine Fisheries Service Statistical Areas)



Areas 15 through 25 are the same geographic areas as the National Marine Fisheries Service statistical areas except where the Massachusetts territorial line runs through them.

— — = Hague Line

▭ = Territorial Waters



Here is a brief definition of each lobster license type:

Coastal Commercial: Allows the holder to harvest lobster anywhere, most importantly inside territorial waters.

Offshore Commercial: Allows the holder to harvest lobster outside territorial waters only.

Seasonal Commercial: Allows the holder, if he or she is a student, to harvest lobster anywhere, but with a maximum of 25 traps and only during the months of June - September.

Non-commercial: Allows the holder to harvest lobster anywhere using SCUBA gear, a maximum of 10 traps, or a combination of both. The catch may not be sold.

Regulations promulgated by the New England Fishery Management Council in cooperation with the major lobster harvesting states of the Atlantic Coast, declared 1990 the "off-year" of a 5-year program to increase the minimum legal size from 3 3/16 in 1987 to 3 5/16 inches by January of 1992 through four 1/32 inch increases. The program was suspended at the end of 1990 and the planned increases in 1991 and 1992 were delayed pending a study of the economic impact of the program. The gauge increase program has not resumed and has been superseded by a proposed amendment to the lobster Fishery Management Plan to control fishing effort without a gauge increase.

Tables presenting number of fishermen, number of pots fished, number and value of boats used in the fishery and total landings statewide, by county and license type, and for each city and town were prepared using the catch reports submitted by commercial fishermen. In keeping with Division policy, some of the data are masked or combined to protect the confidentiality of the individual submitting the report. Data referring to the number of fishermen, number and value of gear, and number and value of boats are presented by the home port of the licensee filing the report. Pounds of lobster harvested are presented by the port of landing reported by the fishermen.

Vessel and SCUBA gear values were calculated on the basis of the fishermen's estimate of its present value and the percentage of the time it is in use specifically for lobstering. Average values were used when the information was omitted from an individual report. When fishermen reported the number of lobsters taken, rather than poundage, a conversion factor of 1.27 pounds per lobster was used to calculate poundage figures. This figure is based on information collected by the Division's Coastal Lobster Investigations Project. For information on biological (average carapace length, sex ratios, percent of egg-bearing lobster in catch etc.) and other parameters (mortality, exploitation and catch per unit of effort rates) contact this Project in Pocasset, MA at (508) 563-1779.

Where tables refer to county, the reader is referred to Figure 10.

ISSUED LICENSES AND REPORTING STATUS

Table 1 lists the number of commercial and recreational licenses issued in 1999, the dollar value of fees collected and the number that reported catching lobster. There were 2,164 commercial lobster licenses issued during 1999: 1,549 coastal, 526 offshore and 89 seasonal. Non-commercial licenses issued totaled 11,633; breakdown of their reporting status and landings can be found in Table 6.

As of April, 2001, a total of 95 licensed commercial lobstermen (4.4 percent) failed to file a catch report with the Division. Of the 2,069 commercial fishermen who reported, 548 or 26.5 percent claimed they did not catch any lobster during 1999. The number of coastal licenses issued continues to decline since a 1988 moratorium on the issuance of new licenses. An annual decrease of approximately 1.3 percent per year continued in 1999 driven by fishermen leaving the fishery and the Division's policy to retire half of these licenses through attrition.

The number of offshore licenses issued decreased slightly in 1999. Overall compliance with catch reporting by the offshore fleet appears to be improving. Student commercial licenses increased by approximately 8 percent over last year.

Table 1. 1999 Massachusetts Lobster Fishery; Reporting Status of Licenses Issued

License Type (Fee)	Licenses Issued	Licensing Revenue	Reported "Catching Lobster"		Reported "No Lobster Catch"		Not Reporting	
Coastal Commercial ($260)	1,549	$402,740	1,118	72%	417	27%	14	1%
Offshore Commercial ($260)	526	$136,760	348	66%	123	23%	55	10%
Seasonal (Student) Commercial ($65)	89	$5,785	55	62%	8	9%	26	29%
Non-Commercial ($40)	11,633	$465,320	6,398	81%	2,550	82%	2,685	97%
Total	13,797	$1,010,605	7,919	57%	3,098	22%	2,780	20%

Table 2. Massachusetts Commercial Lobster Fishery; Selected Licensing Information, 1995 - 1999

	1995	1996	1997	1998	**1999**	Percent Five Year Change
Coastal Licenses						
Issued	1,609	1,598	1,591	1,570	**1,549**	*-3.73%*
% Change		*-0.68*	*-0.44*	*-1.32*	***-1.34***	
"Caught Lobster"	1,190	1,179	1,162	1,161	**1,118**	
% Change		*-0.24*	*-1.01*	*1.25*	***-2.40***	
"Did Not Catch Lobster"	403	404	407	385	**417**	
% Change		*0.94*	*1.19*	*-4.14*	***9.78***	
Not Reporting	16	15	22	24	**14**	
% Change		*-5.60*	*47.31*	*10.55*	***-40.88***	
Percent Not Reporting	1.0%	0.9%	1.4%	1.5%	**0.9%**	
Offshore Licenses						
Issued	596	551	554	529	**526**	*-11.74%*
% Change		*-7.55*	*0.54*	*-4.51*	***-0.57***	
"Caught Lobster"	439	400	354	350	**348**	
% Change		*-1.44*	*-11.98*	*3.54*	***0.00***	
"Did Not Catch Lobster"	117	114	117	115	**123**	
% Change		*5.39*	*2.08*	*2.94*	***7.57***	
Not Reporting	49	37	83	64	**55**	
% Change		*-18.32*	*123.11*	*-19.25*	***-13.57***	
Percent Not Reporting		6.7%	15.0%	12.1%	**10.5%**	
Seasonal (Student) Licenses						
Issued	82	65	78	82	**89**	*8.54%*
% Change		*-20.73*	*20.00*	*5.13*	***8.54***	
"Caught Lobster"	42	40	39	41	**55**	
% Change		*20.15*	*-2.50*	*5.13*	***34.15***	
"Did Not Catch Lobster"	12	7	6	7	**8**	
% Change		*-26.41*	*-14.29*	*16.67*	***14.29***	
Not Reporting	28	18	33	34	**26**	
% Change		*-18.90*	*83.33*	*18.00*	***-23.53***	
Percent Not Reporting		27.7%	42.3%	41.5%	**29.2%**	

Note: All annual percentage changes are normalized to the number of licenses issued for each license type in each year.

LANDINGS AND VALUE

In 1999, 15,905,731 pounds of lobster were reported landed by commercial lobstermen in Massachusetts, a 20.90 percent increase from 1998. Based on an average price of $3.74 per pound, the commercial catch was valued at $59,487,434, a 24.91 percent increase from 1998. Figure 2. shows the weighted ex-vessel price for 1999 as derived from audits of lobstermen's records. The weighted average price of $3.74 rose 3.31 percent over the average ex-vessel price paid in 1998. (Weighted price means that each price is weighted by the number of pounds that were paid at that price instead of taking a flat average of all prices).

Of the 15,905,731 pounds of lobster landed commercially, 9,603,589 were reported taken within the territorial waters of the Commonwealth. In total pounds of lobster landed, Essex County continues to be ranked first, Plymouth County second and Bristol County third. See Table 3 for a breakdown of pounds landed and number of fishermen by license type and county and Table 4 for a five-year comparison of selected landings and effort statistics.

Gloucester was the number one port in total pounds landed followed by Marshfield, Fairhaven and Plymouth in that order. In total numbers of active commercial fishermen, Essex County ranked first with 535, Plymouth County second with 321 and Bristol County third with 248. Among the cities and towns of the Commonwealth, Gloucester ranked first in active fishermen followed by New Bedford, Plymouth and Marshfield in that order. See Tables 3 and 5, (the shaded areas in Table 5 refer to the top 10 cities in at least one of the two categories: pounds landed and number of fishermen).

Figure 2. 1999 Massachusetts Commercial Lobster Fishery
Weighted Ex-Vessel Price Derived from Audited Lobstermen's Records

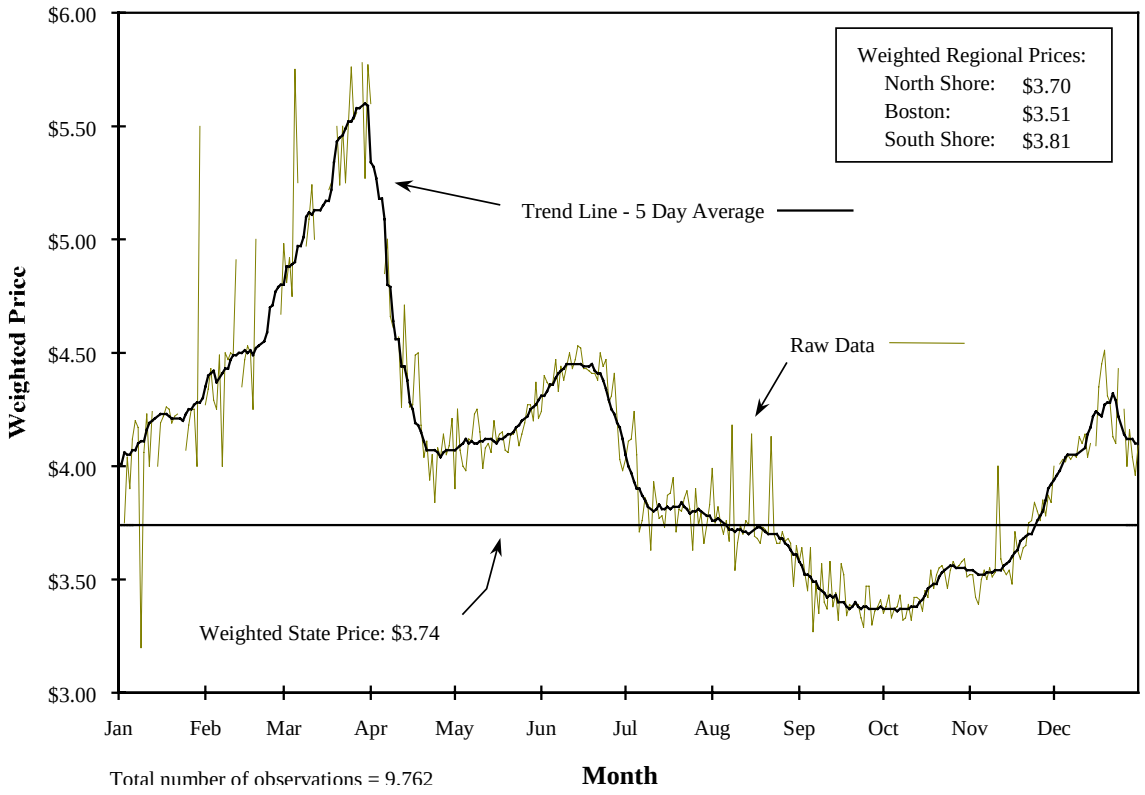


Table 3. 1999 Massachusetts Commercial Lobster Fishery; Number of Fishermen, Harvest (Lbs.) and Value of Harvest

AREA:	TERRITORIAL (Areas 1 - 14)						NON-TERRITORIAL (Areas 15 - 25)					
LICENSE TYPE:	---------- COASTAL ----------				SEASONAL		---- COASTAL -----		---- OFFSHORE ----			
GEAR TYPE:	Diver	Potman	Potman/ Diver	Trawl/ Gillnet	Potman	TOTAL+ INSHORE	Potman	Trawl/ Gillnet	Potman	Trawl/ Gillnet	TOTAL+ OFFSHORE	GRAND+ TOTAL
-- COUNTY --												
BARNSTABLE												
Fishermen	3	137	9		10	**159**	9		7	34	**50**	**209**
Pounds	8,202	1,121,501	59,529		1,541	**1,190,773**	232,793		800,946	46,363	**1,080,214**	**2,270,987**
Value ($)	30,675	4,194,414	222,638		5,763	**4,453,491**	870,645		2,995,538	173,396	**4,040,000**	**8,493,491**
BRISTOL												
Fishermen		73			4	**77**	15		18	139	**172**	**248**
Pounds		479,419			988	**480,407**	667,096		809,566	394,045	**1,871,045**	**2,351,452**
Value ($)		1,793,027			3,695	**1,796,723**	2,494,940		3,027,776	1,473,730	**6,997,709**	**8,794,432**
DUKES												
Fishermen		27				**29+**	5		7		**13**	**42**
Pounds		117,569				**118,274**	79,332		80,241		**159,878**	**278,152**
Value ($)		439,709				**442,346**	296,701		300,101		**597,943**	**1,040,289**
ESSEX												
Fishermen		370	8	4	21	**403**	48		11	71	**132**	**535**
Pounds		3,797,378	41,559	2,184	7,695	**3,848,816**	1,683,700		360,750	152,727	**2,198,272**	**6,047,089**
Value ($)		14,202,195	155,431	8,168	28,779	**14,394,573**	6,297,038		1,349,205	571,200	**8,221,538**	**22,616,111**
NANTUCKET												
Fishermen		5				**6+**					**3+**	**9**
Pounds		6,345				**6,475**					**57,276**	**63,751**
Value ($)		23,732				**24,218**					**214,211**	**238,429**
NORFOLK												
Fishermen		45				**47+**					**1+**	**48**
Pounds		428,710				**445,432**					**45,988**	**491,419**
Value ($)		1,603,374				**1,665,914**					**171,994**	**1,837,908**
PLYMOUTH												
Fishermen		253	10		17	**283+**	22	4		10	**38+**	**321**
Pounds		2,762,972	45,498		4,005	**2,815,552**	715,657	23,658		4,719	**751,114**	**3,566,666**
Value ($)		10,333,516	170,161		14,979	**10,530,164**	2,676,558	88,481		17,647	**2,809,166**	**13,339,329**
SUFFOLK												
Fishermen		57				**59+**				19	**25+**	**84**
Pounds		691,770				**692,746**				57,363	**107,417**	**800,163**
Value ($)		2,587,220				**2,590,870**				214,536	**401,740**	**2,992,610**
*STATE TOTAL **												
Fishermen	6	967	30	5	55	**1,063**	102	7	49	275	**434**	**1,497**
Pounds	9,630	9,405,665	163,537	4,559	15,084	**9,598,476**	3,527,931	25,203	2,058,673	659,396	**6,271,203**	**15,869,679**
Value ($)	36,016	35,177,188	611,630	17,051	56,414	**35,898,299**	13,194,462	94,259	7,699,436	2,466,142	**23,454,300**	**59,352,599**
OUT OF STATE												
Fishermen						**1+**				22	**23+**	**24**
Pounds						**5,113**				15,379	**30,939**	**36,052**
Value ($)						**19,123**				57,516	**115,712**	**134,834**

* +Row and column totals may not equal the sum of the rows or columns due to masking of the data. Value is based on an ex-vessel price of $3.74, see Figure 2.

Table 4. Massachusetts Commercial Lobster Fishery;
Selected Landings (Lbs.) and Effort Statistics, 1995-99

	1995	1996	1997	1998	**1999**	Percent Five Year Change
Total Landings	15,949,362	15,361,045	15,092,015	13,236,091	**15,905,731**	-0.27
Percent Change		-3.69	-1.75	-12.30	**20.17**	
Total Traps Fished	482,180	495,651	489,907	505,048	**501,097**	3.92
Percent Change		2.79	-1.16	3.09	**-0.78**	
Total Value	$51,037,958	$50,077,007	$49,199,969	$47,914,649	**$59,487,434**	16.56
Percent Change		-1.88	-1.75	-2.61	**24.15**	
INSHORE (TERRITORIAL - Inside 3 Miles)						
Landings	10,040,721	9,109,902	8,434,199	7,660,274	**9,603,589**	-4.35
Percent Change		-9.27	-7.42	-9.18	**25.37**	
Value	$32,130,307	$29,698,281	$27,495,489	$27,730,192	**$35,917,423**	11.79
Percent Change		-7.57	-7.42	0.85	**29.52**	
Trap Landings	10,027,563	9,076,886	8,419,590	7,641,958	**9,589,277**	-4.37
		-9.48	-7.24	-9.24	**25.48**	
Traps Fished	358,075	366,946	351,639	368,451	**367,523**	2.64
		2.48	-4.17	4.78	**-0.25**	
Non-Trap Landings	13,158	33,016	14,609	18,316	**14,189**	7.84
(Gillnet, Diver)		150.92	-55.75	25.37	**-22.53**	
OFFSHORE (NON-TERRITORIAL - Outside 3 Miles)						
Landings	5,908,641	6,251,143	6,657,816	5,575,816	**6,302,142**	6.66
Percent Change		5.80	6.51	-16.25	**13.03**	
Value	$18,907,651	$20,378,726	$21,704,480	$20,184,454	**$23,570,011**	24.66
Percent Change		7.78	6.51	-7.00	**16.77**	
Trap Landings	4,994,645	5,331,921	6,038,239	4,925,368	**5,602,287**	12.17
		6.75	13.25	-18.43	**13.74**	
Traps Fished	124,106	128,704	138,267	136,596	**133,574**	7.63
		3.70	7.43	-1.21	**-2.21**	
Non-Trap Landings	913,996	919,222	619,577	650,448	**699,978**	-23.42
(Gillnet, Trawler)		0.57	-32.60	4.98	**7.61**	
Average Price ($) / Pound	3.2	3.26	3.26	3.62	**3.74**	
Percent Change		1.87	0.00	11.04	3.31	
Ave. Lbs. / Trap-Haul	0.7286	0.7296	0.7721	0.6667	**0.8160**	
Percent Change		0.14	5.83	-13.65	**22.39**	
Ave. Lbs. / Trap	31.15	29.07	29.51	24.88	30.32	
Percent Change		-6.69	1.52	-15.68	**21.83**	

Table 5. 1999 Massachusetts Commercial Lobster Fishery - Number of Active Commercial Fishermen and Landings by Homeport

Does Not Include Seasonal (Student) Licenses

CITY/TOWN	FISHERMEN NUMBER	FISHERMEN RANK	POUNDS INSHORE	POUNDS OFFSHORE	POUNDS TOTAL	POUNDS PERCENT	POUNDS RANK
BARNSTABLE	5	44	56,831	460,515	517,346	3.26	13
BEVERLY	**40**	**11**	**504,445**	**156,601**	**661,046**	**4.17**	**7**
BOSTON	**58**	**6**	**419,786**	**100,432**	**520,218**	**3.28**	**12**
BOURNE	7	37	24,739	0	24,739	0.16	39
CHATHAM	**45**	**8**	**187,543**	**86,181**	**273,724**	**1.73**	**18**
CHILMARK	21	20	90,315	156,867	247,183	1.56	21
COHASSET	34	15	435,600	42,310	477,910	3.01	14
DANVERS	6	43	48,244	0	48,244	0.30	33
DARTMOUTH	10	30	7,194	600	7,794	0.05	49
DENNIS	15	24	99,826	382	100,208	0.63	27
DUXBURY	8	34	61,744	0	61,744	0.39	32
EDGARTOWN	4	48	4,635	990	5,625	0.04	50
ESSEX	5	44	17,415	0	17,415	0.11	41
FAIRHAVEN	**43**	**9**	**254,016**	**691,759**	**945,775**	**5.97**	**3**
FALMOUTH	9	31	13,852	21,921	35,773	0.23	35
GLOUCESTER	**211**	**1**	**1,133,840**	**1,714,679**	**2,848,518**	**17.97**	**1**
GOSNOLD	4	48	8,065	0	8,065	0.05	47
HARWICH	9	31	14,479	85,989	100,468	0.63	26
HINGHAM	18	23	294,089	45,236	339,326	2.14	16
HULL	29	16	261,284	102,799	364,083	2.30	15
IPSWICH	15	24	34,822	0	34,822	0.22	36
KINGSTON	4	48	30,099	0	30,099	0.19	38
LYNN	5	44	44,313	45,685	89,997	0.57	29
MANCHESTER	23	19	253,127	19,876	273,003	1.72	19
MARBLEHEAD	40	11	432,997	91,533	524,530	3.31	11
MARION	3	52	8,066	0	8,066	0.05	46
MARSHFIELD	**77**	**4**	**934,862**	**271,372**	**1,206,233**	**7.61**	**2**
MATTAPOISETT	12	28	34,253	8,032	42,285	0.27	34
NAHANT	25	17	245,334	24,135	269,469	1.70	20
NANTUCKET	9	31	6,475	57,276	63,751	0.40	31
NEW BEDFORD	**151**	**2**	**153,406**	**635,270**	**788,677**	**4.97**	**6**
NEWBURY	3	52	819	800	1,619	0.01	53
NEWBURYPORT	15	24	82,452	14,477	96,929	0.61	28
OAK BLUFFS	3	52	7,863	0	7,863	0.05	48
ORLEANS-EASTHAM	21	20	109,304	17,661	126,965	0.80	25
PLYMOUTH	**90**	**3**	**836,320**	**53,290**	**889,610**	**5.61**	**4**
PROVINCETOWN	36	13	206,445	17,226	223,671	1.41	22
QUINCY	7	37	3,887	126	4,013	0.03	52
REVERE-CHELSEA-MEDFORD	12	28	203,307	6,986	210,292	1.33	24
ROCKPORT	**65**	**5**	**531,095**	**119,576**	**650,671**	**4.10**	**8**
ROWLEY	3	52	1,300	0	1,300	0.01	54
SALEM	7	37	5,339	0	5,339	0.03	51
SALISBURY	8	34	7,537	3,050	10,587	0.07	43
SANDWICH	**36**	**13**	**426,226**	**390,339**	**816,565**	**5.15**	**5**
SAUGUS	24	18	279,556	7,862	287,418	1.81	17
SCITUATE	**56**	**7**	**328,852**	**270,386**	**599,237**	**3.78**	**10**
SWAMPSCOTT	19	22	218,487	0	218,487	1.38	23
TISBURY	8	34	6,691	2,020	8,712	0.05	45
TRURO	7	37	16,949	0	16,949	0.11	42
WAREHAM	7	37	21,978	0	21,978	0.14	40
WELLFLEET	5	44	32,111	0	32,111	0.20	37
WESTPORT-SWANSEA - FALL RIVER	**41**	**10**	**64,802**	**543,416**	**608,219**	**3.84**	**9**
WEYMOUTH - BRAINTREE	7	37	5,944	3,552	9,496	0.06	44
WINTHROP	13	27	69,504	0	69,504	0.44	30
YARMOUTH	4	48	926	0	926	0.01	55
STATEWIDE TOTAL	**1,442**		**9,583,392**	**6,271,203**	**15,854,595**	**100.00**	
OUT OF STATE	24		5,113	30,939	36,052		

Shaded areas denote towns which rank in the top 10 for number of fishermen or total landings or both.

RECREATIONAL LOBSTER FISHERY

Recreational statistics are shown in Table 6. Licenses issued in 1999 totaled 11,633, up slightly from 1998, with 8,948 or 76.92% percent, reporting that they fished for lobster. In general, reporting rates dropped slightly and the percentage of license holders fishing decreased. Landings increased by approximately 1.77% percent from 1998. The number of traps fished in the recreational fishery decreased in 1999. The number of hours dived has continued to decline from 1993 levels. Landings amounted to 335,275 pounds or only 2.11 percent of the commercial landings. It should be noted that those individuals who did not report, were not able to renew their recreational license for 2000. Twenty-three percent of the licenses in the recreational fishery have turned over in the past year; historically, this turn-over rate is not unusual.

Table 6. 1999 Massachusetts Recreational Lobster Fishery; License Status and Harvest Information

License Type:	Diver	Diver/Pot	Potman	Total	Percent
1) Number of Licenses Issued in 1999	3,846	3,245	4,542	**11,633**	
2) Number that Reported	2,872	2,575	3,501	**8,948**	76.92%
a) Total Number That Fished	2,017	1,816	2,565	**6,398**	55.00%
b) Total Number That Did Not Fish	855	759	936	**2,550**	21.92%
3) Number That Did Not Report	974	670	1,041	**2,685**	23.08%
4) Number of Lobsters Reported Landed	45,834	73,819	144,343	**263,996**	% Change from 1998
Pounds of Lobsters (Calculated)*	58,209	93,750	183,316	**335,275**	1.77%
5) Number Pots Fished		6,312	19,437	**25,749**	-9.87%
6) Number of Hours Diving	30,869	23,037		**53,906**	-4.08%
* Based on 1.27 Pounds per Lobster.					

TERRITORIAL FISHERY

Territorial landings by commercial fishermen were concentrated in the months of July through November when 75 percent of the yearly harvest was landed. A typical yearly scenario is for catches to increase sometime in mid to late July and peak in August and September. Water temperatures rise during this time inducing growth and subsequent recruitment of previously sub-legal lobsters into the legal size category. The bulk of 1999 landings were distributed July through November with concentrated landings in September, October and November. Landings in 1998 were similar to 1999 with the high concentrations in September, October and November. See Table 7 and Figure 3.

The greatest harvest of lobster from territorial waters was from the Boston Harbor vicinity (including the outlying areas which comprise Area 4 on Figure 1A), where approximately 24.04% of the state's territorial harvest was caught.

Table 7. 1999 Massachusetts Commercial Lobster Fishery
Percent Monthly Territorial Harvest by License Type

Month	Coastal	Seasonal
January	3.11	0.00
February	1.21	0.00
March	0.74	0.00
April	1.88	0.00
May	3.51	0.00
June	6.26	14.72
July	11.09	40.03
August	12.71	29.32
September	16.45	15.93
October	18.86	0.00
November	15.65	0.00
December	8.53	0.00
Total	100.00	100.00

Figure 3. 1999 Massachusetts Commercial Lobster Fishery
Total Monthly Territorial Harvest for Coastal and Seasonal License Types

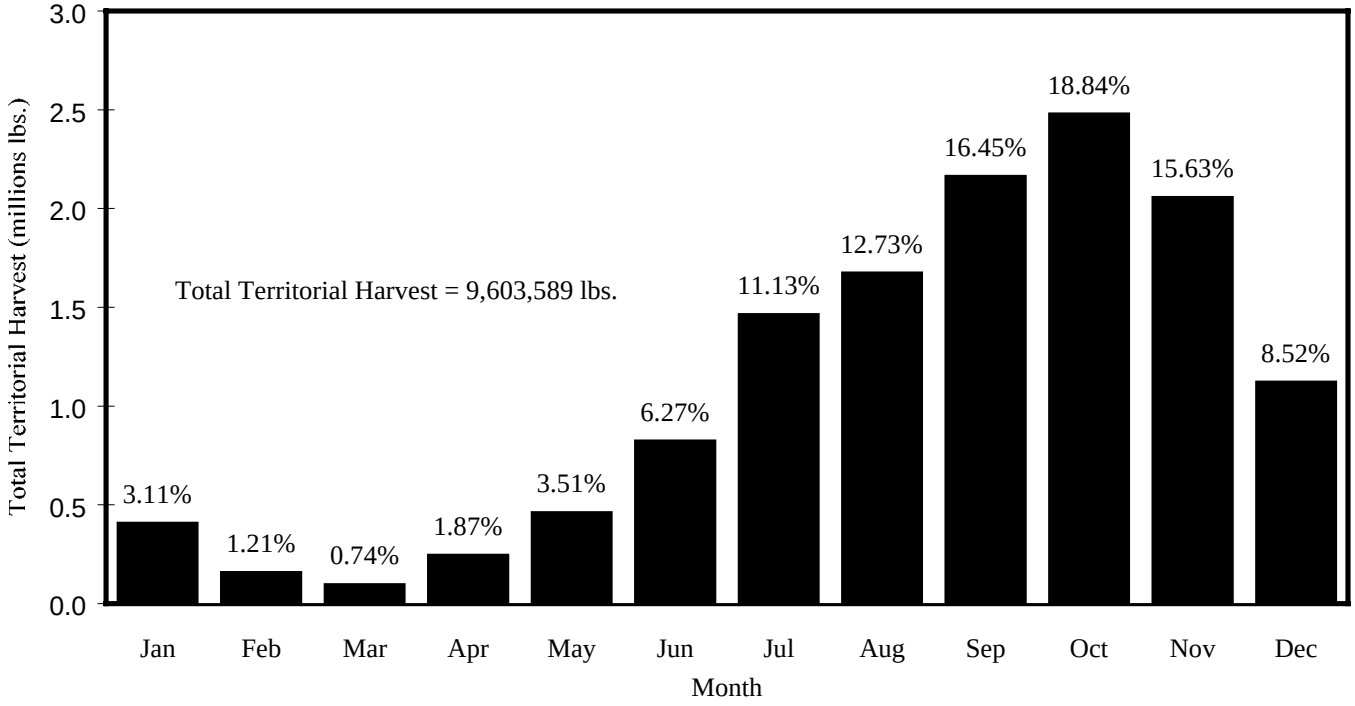


Figure 5. 1999 Massachusetts Lobster Fishery; Landings by Statistical Reporting Area - (See Figures 1A & 1B for References to Reporting Areas)

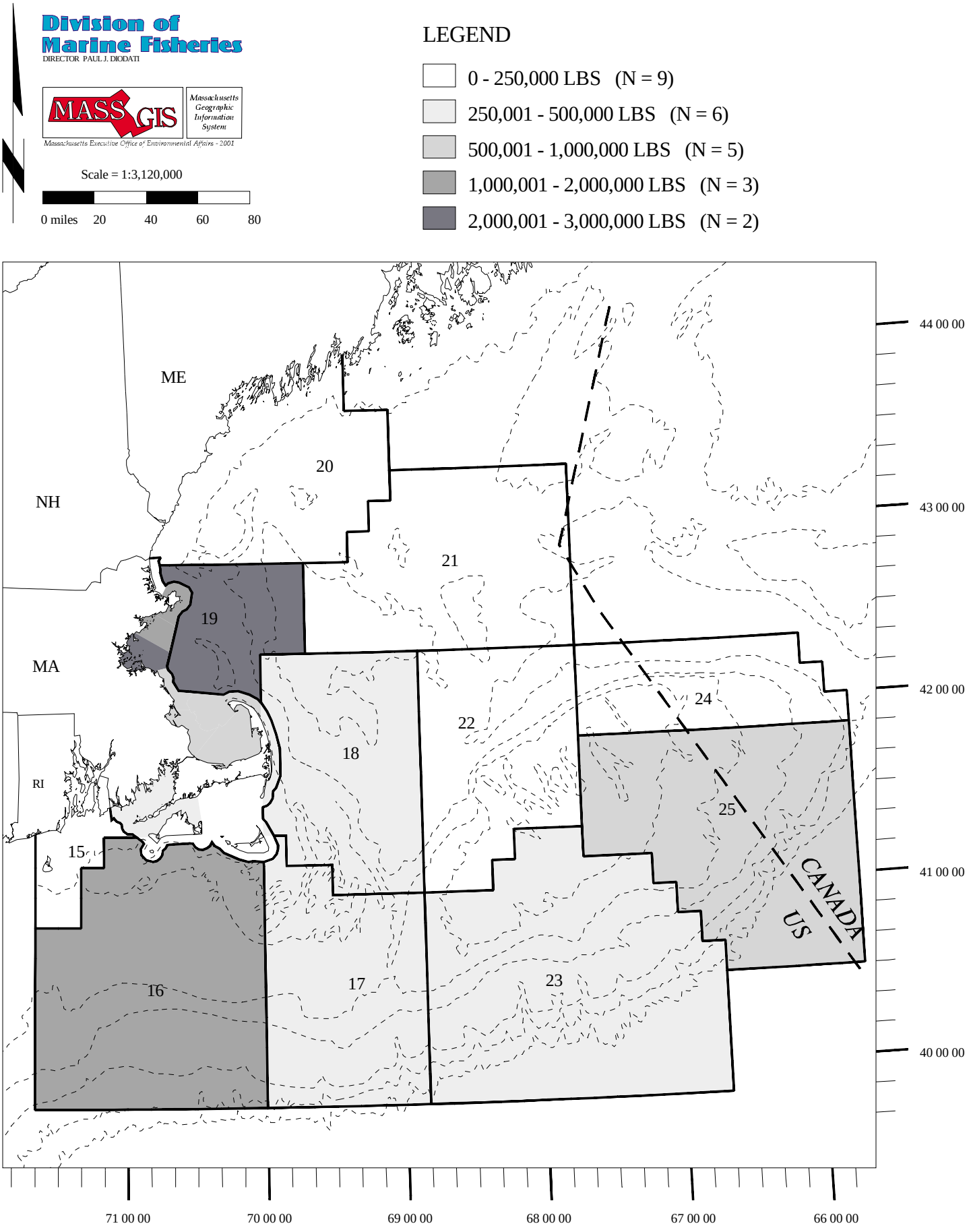


Table 8. 1999 Massachusetts Commercial Lobster Fishery
Percent Territorial Harvest by Area Fished by License Type

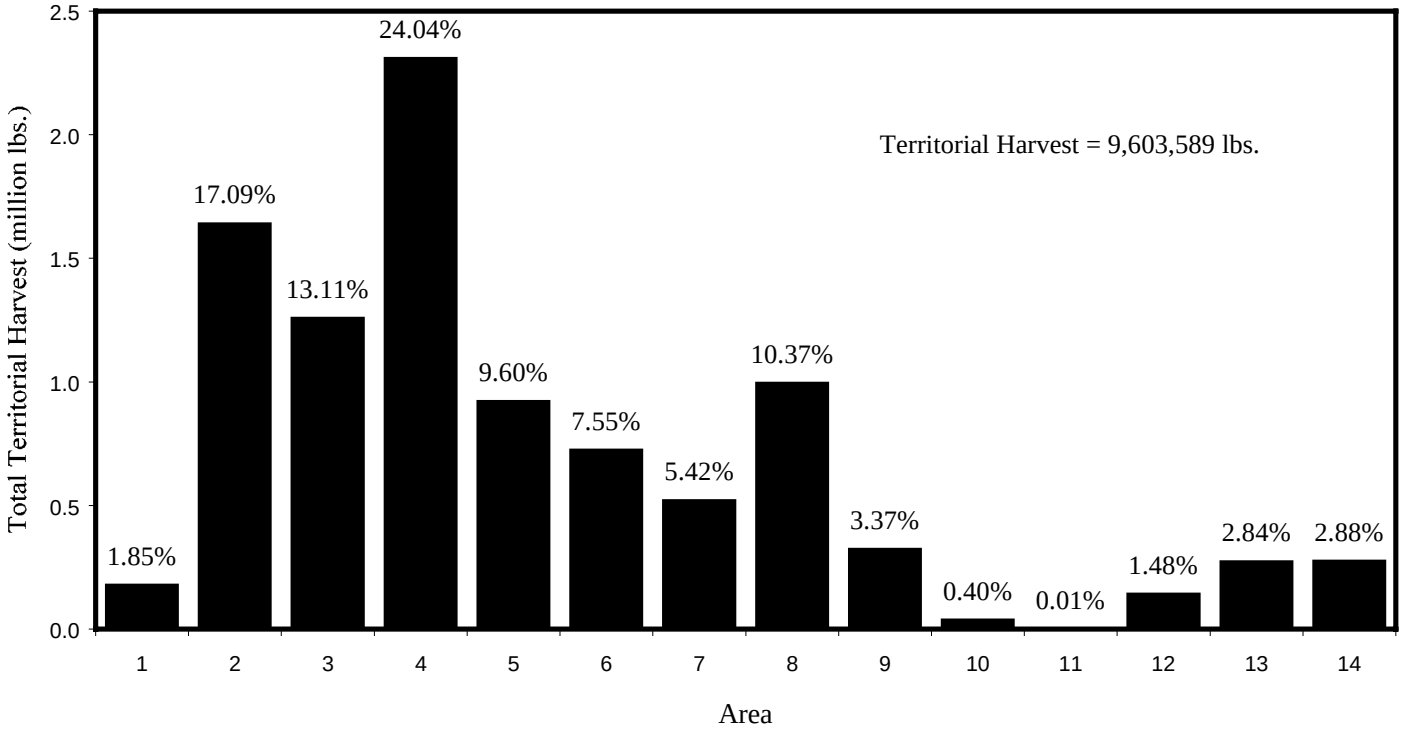
Area Fished	Coastal	Seasonal
1	1.85	2.89
2	17.05	41.19
3	13.12	6.65
4	24.07	6.03
5	9.60	5.41
6	7.53	16.35
7	5.42	5.76
8	10.39	0.00
9	3.38	0.00
10	0.39	1.44
11	0.01	0.00
12	1.48	0.00
13	2.84	7.46
14	2.87	6.82
Total Pounds	9,588,505	14,961

Territorial landings were up 25.51 percent in 1999. See Figure 1A for the map of fishing areas and Figure 4 and Table 8 for a complete breakdown by area for each license type and month.

Offshore license landings are not shown in Figures 3 and 4 because license holders of this type cannot harvest lobsters within territorial waters. Offshore

landings are more evenly distributed during the year with offshore potmen landings peaking in autumn and mobile gear landings peaking in the winter months. Figure 5 shows the distribution of all lobster landings by statistical reporting area.

Figure 4. 1999 Massachusetts Commercial Lobster Fishery
Total Territorial Harvest for Coastal and Seasonal License Types by Area Fished



CATCH RATES

The average catch per trap haul for coastal lobstermen was .8160 pounds, an increase from 1998. For traps fished one set-over day the average was, 1.0111; for those fished two days, 0.6493, for three days, 0.7260, and for four days, 0.7584. See Figure 6 for catch effort by set-over day.

Figures 7 and 8 show the average catch per trap-haul - set-over day for area fished and month, where set-over day is factored into the effort. The average catch per trap haul - set-over day for 1999 was .1655, a 1.66 percent decrease from 1998 and a sixteen percent decrease from 1995. Overall these figures should be categorized as "estimates" since, in many cases, fishermen will estimate the number of traps hauled per trip for each month. If a fisherman leaves this information blank, the catch report is returned for corrections. If the combination of maximum traps, set-over days, average traps hauled per trip and number of trips per month is out of range for a particular month, the information is interpolated by Division statistics personnel and then factored into the analysis.

Figure 6. 1999 Massachusetts Commercial Lobster Fishery
Catch per Unit of Effort by Set-Over Day for Coastal Potmen and All Potmen

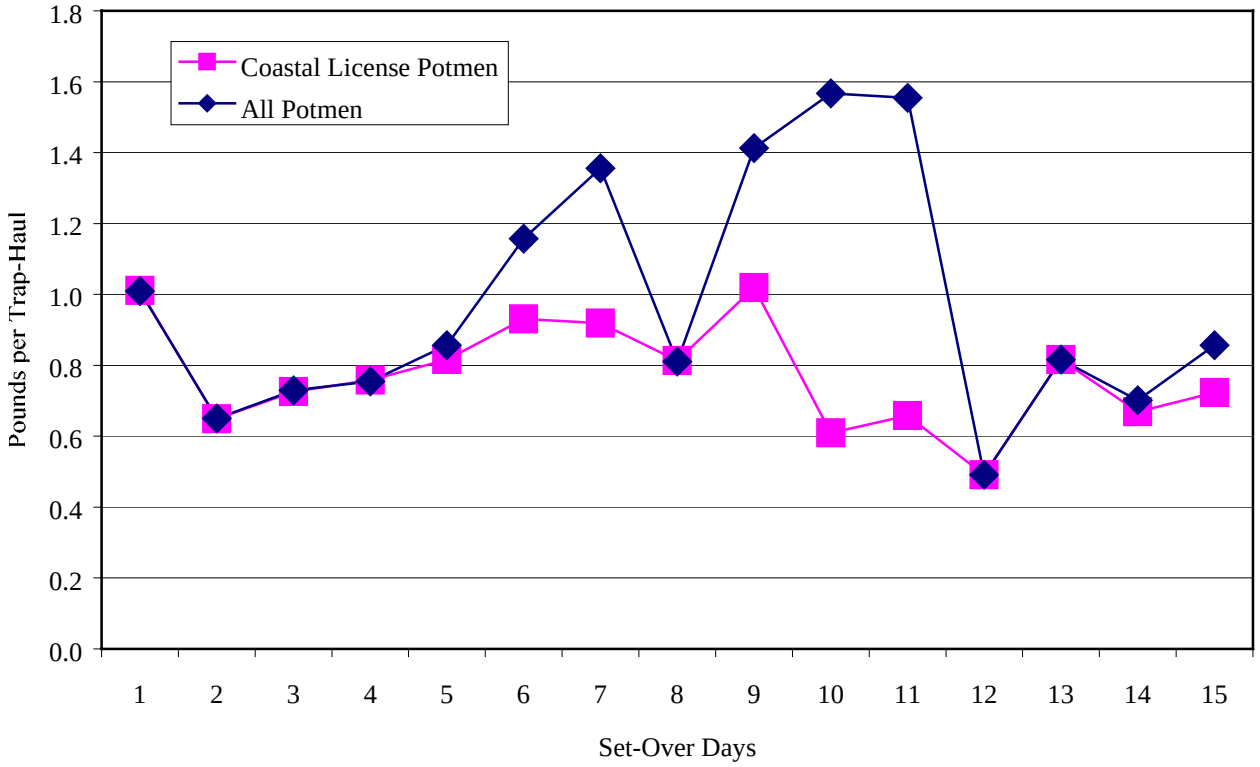


Figure 7. 1999 Massachusetts Commercial Lobster Fishery
Catch per Unit of Effort for Coastal and All Potman by Month

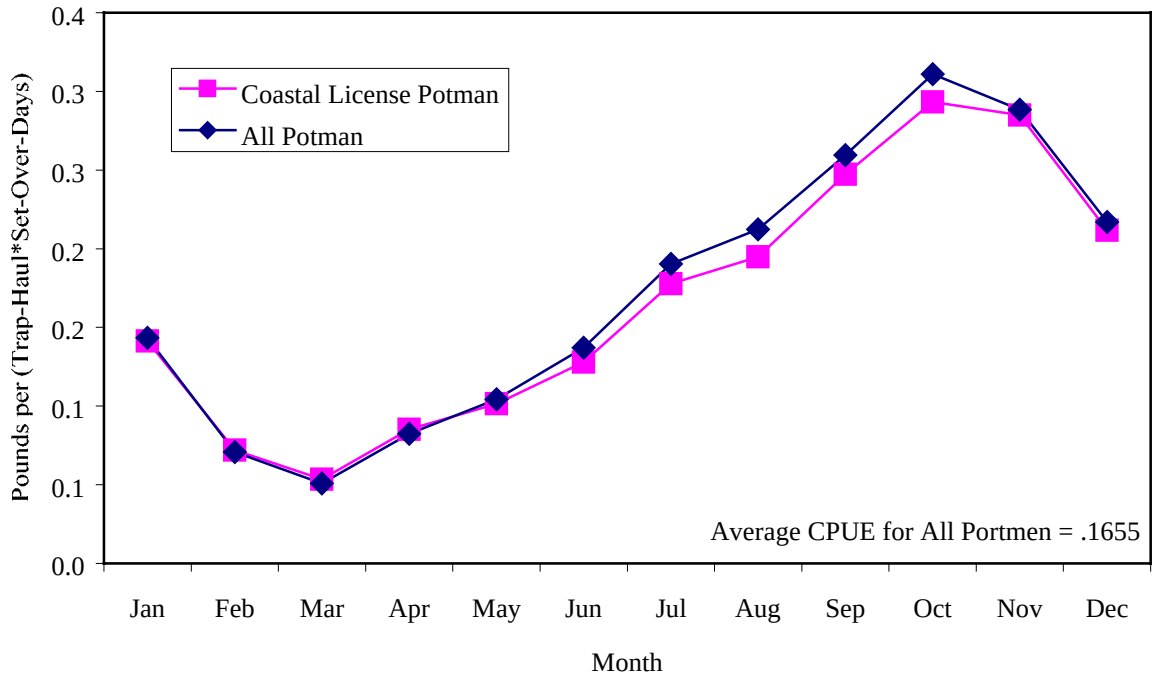
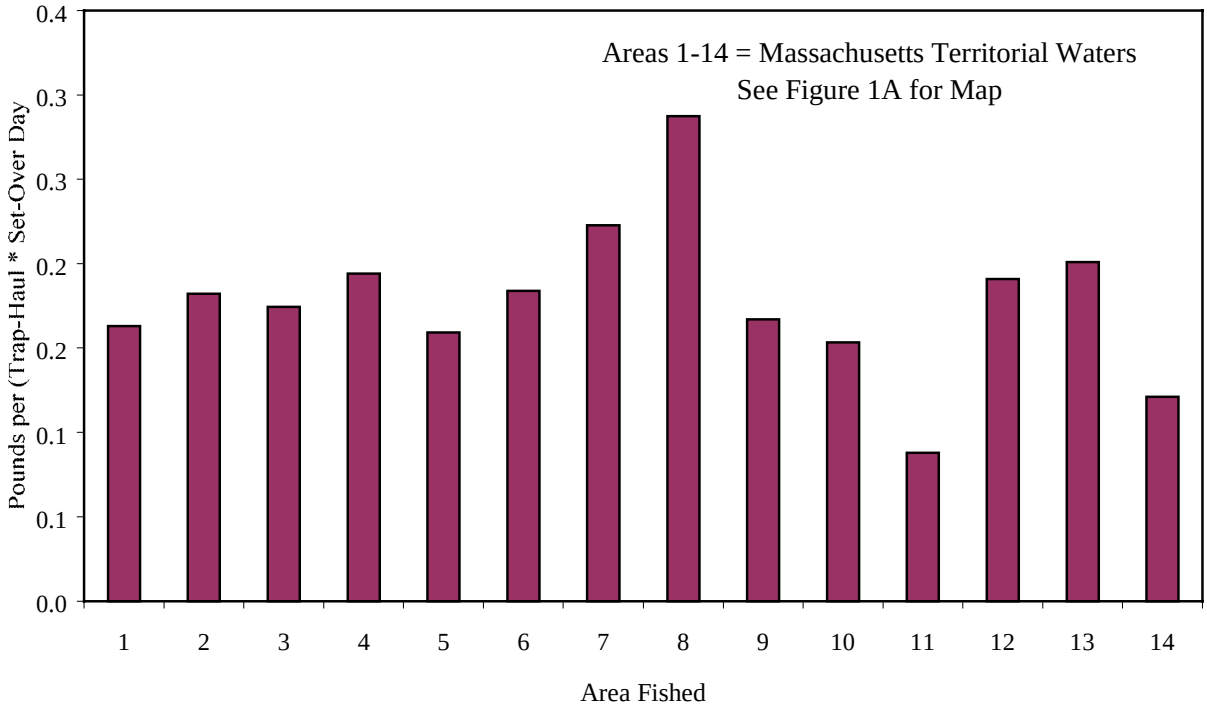


Figure 8. 1999 Massachusetts Commercial Lobster Fishery
Catch per Unit of Effort for All License Types by Area Fished



FISHING GEAR, VESSELS AND VALUE

In the commercial fishery, traps were valued at $29,904,840, diving gear at $36,815 and power and non-power boats at $52,331,645 yielding a total gear value of $82,273,264. Combined with the ex-vessel value of lobster sold, $59,487,434 this gives a total fishery value of $141,760,698. See Tables 9, 10 and 11.

Overall, 89.14% of the traps fished in the commercial fishery were wire framed, with 10.37% being wooden framed and approximately 0.48% categorized as "other". Average value (including warp and buoy) ranged anywhere from $40.78 to $117.16 with an average value of $59.79. See Table 9.

Table 9. 1999 Massachusetts Commercial Lobster Fishery
Trap Types Fished and Value by License Type

	Coastal	Offshore	Seasonal	Total Trap Type	Percent of Total
Wooden Framed Traps	47,842	3,975	59	**51,876**	10.37%
Value	$2,757,468	$440,375	$3,015	**$3,200,857.90**	
Value/Trap	$57.64	$110.79	$51.10	**$61.70**	
Wire Framed Traps	405,229	39,514	1,084	**445,826**	89.14%
Value	$23,127,317	$3,348,673	$44,210	**$26,520,200**	
Value/Trap	$57.07	$84.75	$40.78	**$59.49**	
Other Trap Types	1,406	1,018	0	**2,424**	0.48%
Value	$64,570	$119,213	$0.00	**$183,783**	
Value/Trap	$45.92	$117.16	$0.00	**$75.83**	
Total for License Type	**454,477**	**44,506**	**1,143**	**500,126**	
Value	**$25,949,355**	**$3,908,260**	**$47,225**	**$29,904,840**	
Value/Trap	**$57.10**	**$87.81**	**$41.32**	**$59.79**	

Value of trap includes warp and buoy. These figures include out-of-state fishermen.

Table 10. 1999 Massachusetts Commercial Lobster Fishery; Number of Fishing Vessels and Pots Fished

AREA:	TERRITORIAL (Areas 1-14)						NON-TERRITORIAL (Areas 15 - 25)					
LICENSE TYPE:	---------- COASTAL ----------				SEASONAL		--- COASTAL ---		--- OFFSHORE ---			
GEAR TYPE:	Diver	Potman	Potman/ Diver	Trawl/ Gillnet	(Student) Potman	TOTAL TERRITORIAL	Potman	Trawl/ Gillnet	Potman	Trawl/ Gillnet	TOTAL NON-TERRITORIAL	GRAND TOTAL
-- COUNTY --												
BARNSTABLE												
Pots Fished	0	50,502	3,285	0	208	**53,995**	6,060	0	10,865	0	**16,925**	**70,920**
Power Boat	3	154	11	0	10	**178**	10	0	7	32	**49**	**227**
Non Power Boat	1	33	2	0	0	**36**	3	0	1	0	**4**	**40**
BRISTOL												
Pots Fished	0	18,516	0	0	85	**0**	10,618	0	19,015	0	**29,633**	**29,633**
Power Boat	0	74	0	0	2	**76**	15	0	18	110	**143**	**219**
Non Power Boat	0	2	0	0	0	**2**	0	0	0	0	**0**	**2**
DUKES												
Pots Fished	0	5,789	0	0	50	**5,839**	1,603	0	3,951	0	**5,554**	**11,393**
Power Boat	0	27	0	0	2	**29**	7	0	7	1	**15**	**44**
Non Power Boat	0	3	0	0	0	**3**	1	0	0	0	**1**	**4**
ESSEX												
Pots Fished	0	136,141	1,736	0	430	**138,307**	43,138	0	8,100	0	**51,238**	**189,545**
Power Boat	0	397	10	3	20	**430**	51	2	11	56	**120**	**550**
Non Power Boat	0	83	1	0	0	**84**	4	0	0	0	**4**	**88**
NANTUCKET												
Pots Fished	0	791	30	0		**821**	954	0	100	0	**1,054**	**1,875**
Power Boat	0	7	1	0	0	**8**	1	0	1	1	**3**	**11**
Non Power Boat	0	0	0	0		**0**					**0**	**0**
NORFOLK												
Pots Fished	0	14,425	600	0	0	**15,025**	4,075	0	0	0	**4,075**	**19,100**
Power Boat	1	50	2	0	0	**53**	1	0	0	0	**1**	**54**
Non Power Boat	0	17	0	0	0	**17**						**17**
PLYMOUTH												
Pots Fished	0	105,504	2,963	0	355	**108,822**	18,827	0	305	0	**19,132**	**127,954**
Power Boat	2	289	12	1	19	**323**	28	4	2	9	**43**	**366**
Non Power Boat	0	63	2	0	2	**67**	3	0	0	0	**3**	**70**
SUFFOLK												
Pots Fished	0	25,793	100		15	**25,908**	3,768	0	570	0	**4,338**	**4,338**
Power Boat	0	62	1	0	1	**64**	2	1	3	18	**24**	**25,932**
Non Power Boat	0	5	0	0	0	**5**	0	0	0	0	**0**	**64**
STATE TOTAL												
Pots Fished	**0**	**357,461**	**8,714**	**0**	**1,143**	**348,717**	**89,043**	**0**	**42,906**	**0**	**131,949**	**480,666**
Power Boat	**6**	**1,060**	**37**	**4**	**54**	**1,161**	**115**	**7**	**49**	**227**	**398**	**1,559**
Non Power Boat	**1**	**206**	**5**	**0**	**2**	**214**	**11**	**0**	**1**	**0**	**12**	**226**
OUT OF STATE												
Pots Fished	0	230	0	0	0	230	0	1,600	0	0	1,600	1,830
Power Boat	0	1	0	0	0	1	0	0	1	21	22	23
Non Power Boat	0	1	0	0	0	1	0	0	0	0	0	1

Table 11. 1999 Massachusetts Commercial Lobster Fishery: Value of Fishing Vessels and Diving Gear

AREA:	TERRITORIAL (Areas 1-14)						NON-TERRITORIAL (Areas 15 - 25)					
LICENSE TYPE:	---------- COASTAL ----------				SEASONAL		--- COASTAL ---		--- OFFSHORE ---			
GEAR TYPE:	Diver	Potman	Potman/ Diver	Trawl/ Gillnet	(Student) Potman	TOTAL TERRITORIAL	Potman	Trawl/ Gillnet	Potman	Trawl/ Gillnet	TOTAL NON-TERRITORIAL	GRAND TOTAL
-- COUNTY --												
BARNSTABLE												
Diving Gear	6,700	0	9,310	0	0	**16,010**	0	0	0	0	0	**16,010**
Power Boat	51,200	4,861,769	444,850	0	43,900	**5,401,719**	837,030	0	2,181,000	112,150	3,130,180	**8,531,899**
Non Power Boat	400	11,541	408	0	0	**12,349**	775	0	2,000	0	2,775	**15,124**
BRISTOL												
Diving Gear	0		0	0	0	**0**	0	0	0	0	0	**0**
Power Boat	0	2,207,300	0	0	3,700	**2,211,000**	1,296,300	0	1,935,463	863,450	4,095,213	**6,306,213**
Non Power Boat	0	190	0	0	0	**190**	0	0	0	0	0	**190**
DUKES												
Diving Gear	0		0	0	0	**0**	0	0	0	0	0	**0**
Power Boat	0	848,240	0	0	6,500	**854,740**	165,850	0	132,750	2,000	300,600	**1,155,340**
Non Power Boat	0	575	0	0	0	**575**	225	0	0	0	225	**800**
ESSEX												
Diving Gear	0	0	6,940	0	0	**6,940**	0	0	0	0	0	**6,940**
Power Boat	0	11,451,260	139,830	43,000	61,325	**11,695,415**	4,553,249	4,003	1,169,350	515,300	6,241,902	**17,937,317**
Non Power Boat	0	41,148	150	0	0	**41,298**	1,700	0	0	0	1,700	**42,998**
NANTUCKET												
Diving Gear	0	0	3,600	0	0	**3,600**	0	0	0	0	0	**3,600**
Power Boat	0	115,300	3,600	0	0	**118,900**	140,000	0	12,000	20,000	172,000	**290,900**
Non Power Boat	0	0	0	0	0	**0**	0	0	0	0	0	**0**
NORFOLK												
Diving Gear	1,500	0	15		0	**1,515**	0	0	0	0	0	**1,515**
Power Boat	7,500	1,657,370	53,000	0	0	**1,717,870**	250,000	0	0	0	250,000	**1,967,870**
Non Power Boat	0	6,490	0		0	**6,490**	0	0	0	0	0	**6,490**
PLYMOUTH												**0**
Diving Gear	5,400	0	2,950	0	0	**8,350**	0	0	0	0	0	**8,350**
Power Boat	23,000	8,723,530	208,750	10,000	36,600	**9,001,880**	1,707,050	65,600	30,000	38,200	1,840,850	**10,842,730**
Non Power Boat	0	38,869	1,200	0	230	**40,299**	1,700	0	0	0	1,700	**41,999**
SUFFOLK												
Diving Gear	0	0	400		0	**400**	0	0	0	0	0	**400**
Power Boat	0	2,113,925	20,000		500	**2,134,425**	50,250	800	205,000	2,797,500	3,053,550	**5,187,975**
Non Power Boat	0	3,800	0		0	**3,800**	0	0	0	0	0	**3,800**
STATE TOTAL												
Diving Gear	**13,600**	**0**	**23,215**	**0**	**0**	**36,815**	**0**	**0**	**0**	**0**	**0**	**36,815**
Power Boat	**81,700**	**31,978,694**	**870,030**	**53,000**	**152,525**	**33,135,949**	**8,999,729**	**70,403**	**5,665,563**	**4,348,600**	**19,084,295**	**52,220,244**
Non Power Boat	**400**	**102,613**	**1,758**	**0**	**230**	**105,001**	**4,400**	**0**	**2,000**	**0**	**6,400**	**111,401**
OUT OF STATE												
Diving Gear	0	0	0	0	0	0	0	0	0	0	0	0
Power Boat	0	50,000	0	0	0	50,000	0	0	320,000	290,350	610,350	660,350
Non Power Boat	0	200	0	0	0	200	0	0	0	0	0	200

VALIDITY OF DATA

Each year 150 coastal license holders are selected for audit and asked to submit the records they used to complete the harvest portion of their catch report. The Division does this to help estimate the amount of error involved in the reporting process. Selection is done randomly except when fishermen fail an audit. In these cases, they are audited again the following year. The audit was first instituted in 1977 for the 1976 catch reports. Over the last five years the lobstermen selected for audit reported landing 7,913,783 pounds. The audit of their records revealed a harvest of 7,921,421 pounds or a difference of -0.10 percent.

Last year the fishermen selected for audit reported harvesting 2,024,520 pounds of lobster on their 1999 catch reports. The audit of actual records showed total landings of 2,001,511 pounds, a difference of 23,009 pounds or 1.13 percent. None of the randomly selected fishermen have yet to respond to the audit request. Figure 9 shows the distribution of the percent difference between the selected fishermen's reported catch and their audited records. In general, reported landings are very well documented by dealer receipts and/or personal records, especially by the so-called "high-liners" in the fishery. Most of the lobstermen have had licenses for several years and know what is required in terms of reporting their fishing activities and have been informed of the value of accurate reporting in the development of management plans. They also know that their reported information is kept strictly confidential and published only in aggregate form. These factors all contribute to a conscientious and responsible reporting constituency.

Figure 9. Massachusetts Commercial Lobster Fishery
Frequency Distribution of the Percent Difference Between
Fishermen's Reported Catch and Their Audited Records

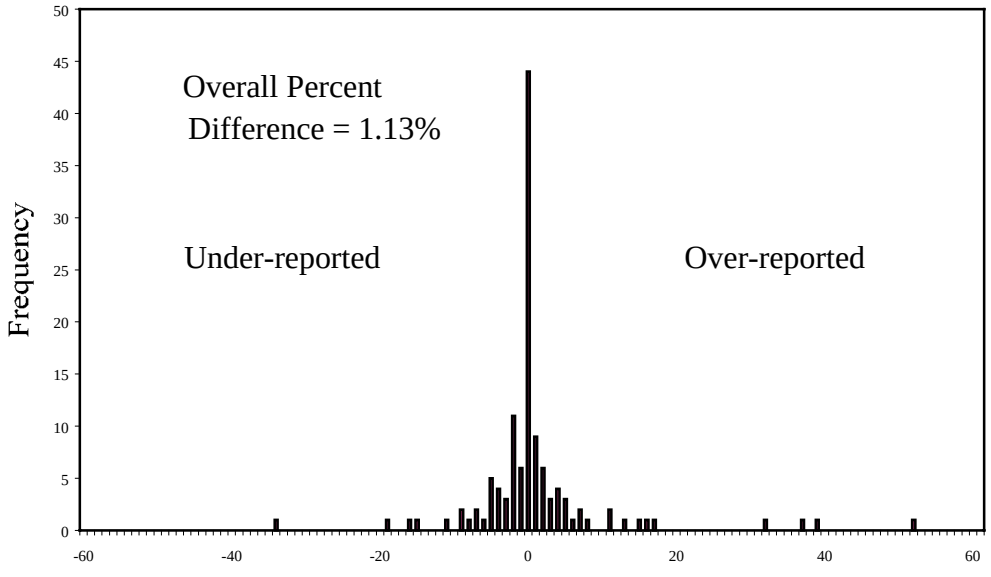
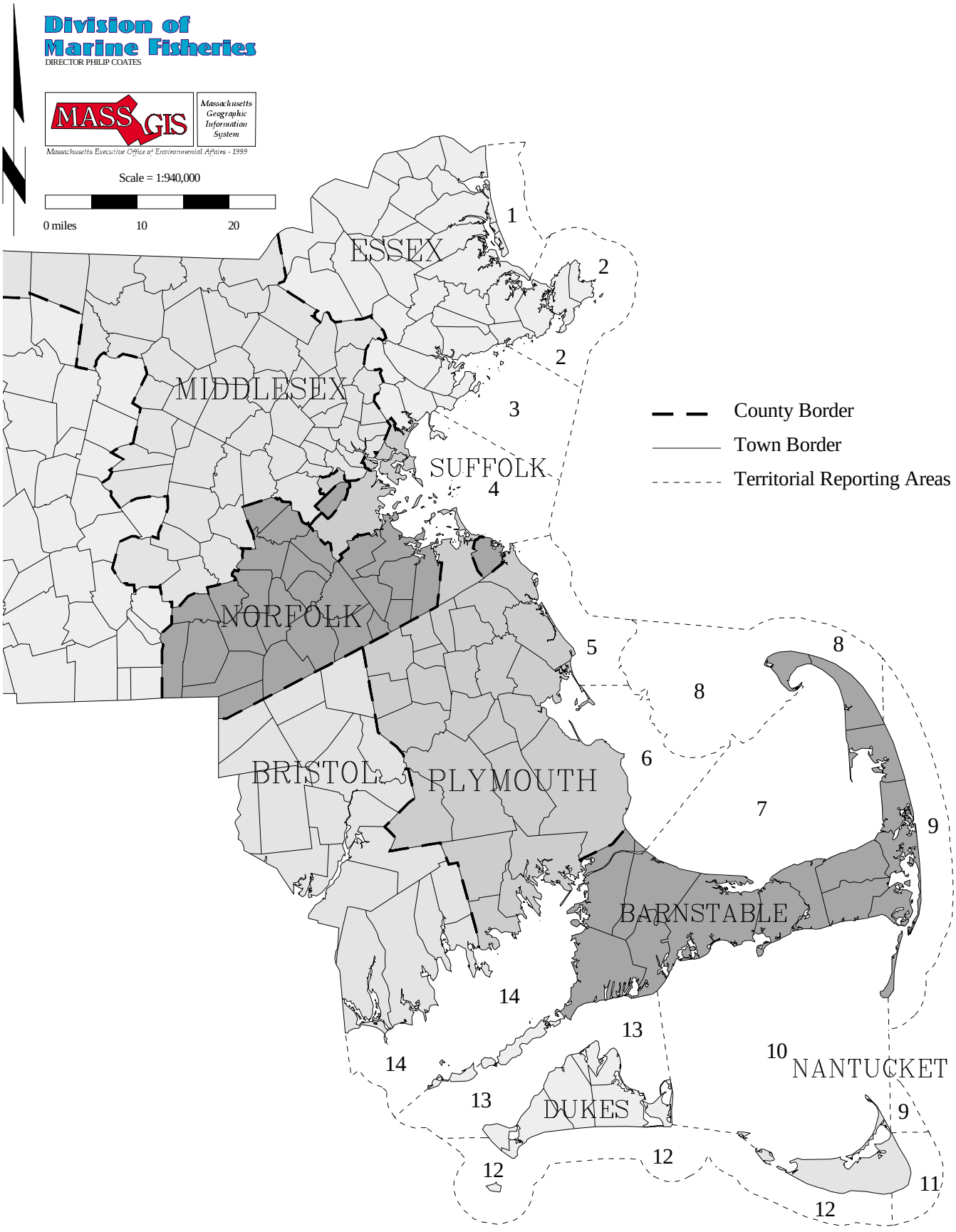
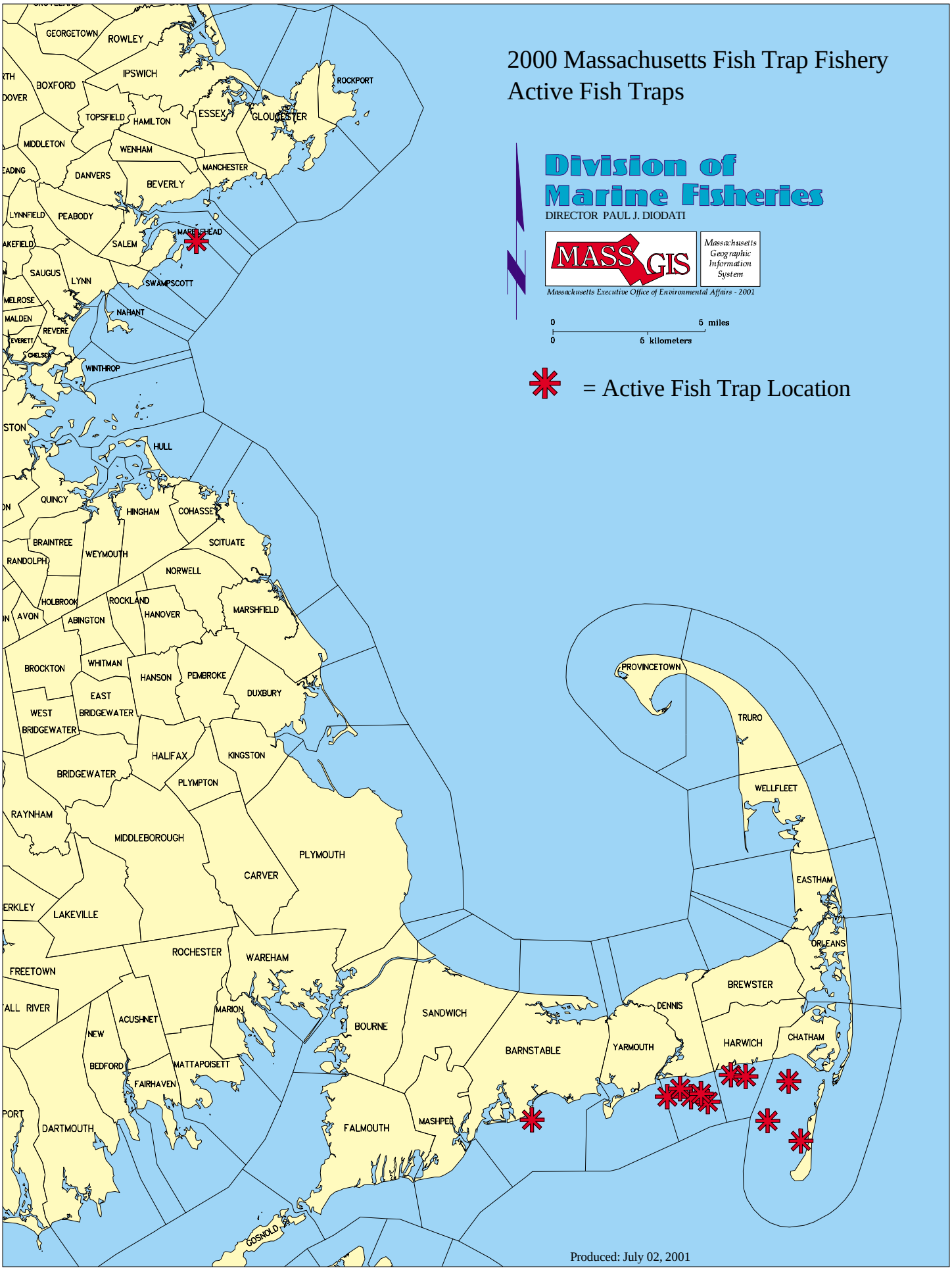


Figure 10. Coastal Map of Massachusetts Showing County Boundaries



APPENDIX B

MASSACHUSETTS FISH TRAPS ACTIVE DURING 2000


2000 Massachusetts Fish Trap Fishery
Active Fish Traps
Division of Marine Fisheries
DIRECTOR PAUL J. DIODATI
MASS GIS
Massachusetts Geographic Information System
Massachusetts Executive Office of Environmental Affairs - 2001
0
5 miles
0
5 kilometers
= Active Fish Trap Location
GEORGETOWN
ROWLEY
IPSWICH
BOXFORD
ROCKPORT
TOPSFIELD
HAMILTON
ESSEX
GLOUCESTER
MIDDLETON
WENHAM
MANCHESTER
DANVERS
BEVERLY
LYNNFIELD
PEABODY
MARBLEHEAD
SALEM
SAUGUS
LYNN
SWAMPSCOTT
MELROSE
NAHANT
MALDEN
REVERE
EVERETT
CHELSEA
WINTHROP
HULL
QUINCY
HINGHAM
COHASSET
BRAINTREE
WEYMOUTH
SCITUATE
RANDOLPH
NORWELL
HOLBROOK
ROCKLAND
HANOVER
MARSHFIELD
AVON
ABINGTON
BROCKTON
WHITMAN
HANSON
PEMBROKE
DUXBURY
EAST
BRIDGEWATER
WEST
BRIDGEWATER
HALIFAX
KINGSTON
BRIDGEWATER
PLYMPTON
RAYNHAM
MIDDLEBOROUGH
PLYMOUTH
CARVER
LAKEVILLE
ROCHESTER
WAREHOUSE
FREETOWN
ACUSHNET
MARION
BOURNE
SANDWICH
NEW
BEDFORD
MATTAPOISETT
FAIRHAVEN
DARTMOUTH
FALMOUTH
MASHPEE
BARNSTABLE
YARMOUTH
DENNIS
HARWICH
BREWSTER
CHATHAM
ORLEANS
EASTHAM
WELLFLEET
TRURO
PROVINCETOWN
GOSNOLD
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